

**Discursive Struggles and Contested Stigma Extensions:
Explaining the Gradual Stigmatization of the U.S. Tobacco Industry**

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Abstract

Despite extensive research on stigma, we still lack a comprehensive understanding of how industry stigmatization progresses when constantly contested by resourceful incumbents. To shed light on this issue, we focus on the revealing case of the U.S. tobacco industry between 1980 and 2016. Combining structural topic modeling and discourse analysis to explore the extensive media discussions surrounding the industry, we find that stigmatization unfolds through three phases, each characterized by discursive struggles, which result in contested stigma extensions: contested stigma extension by establishing harm (1980-1992), contested stigma extension by assigning responsibility (1993-2010), and contested stigma extension by creating new norms (2011-2016). We develop a process model highlighting three key mechanisms in stigmatization processes: *attention*, which shifts focus to new issues and discussions; *stigma construction work*, where the stigmatizers use discursive strategies to establish stigma; and *resistance work*, where targets use discursive strategies to slow down stigmatization. The interplay of these mechanisms reveals that stigmatization is neither linear nor complete but characterized by partial and contested *stigma extensions*. While acknowledging the limitations of our case, our study advances research by showing how industry stigmatization persists even when challenged, opening new avenues for future research in related settings.

Keywords: *stigma, stigmatization, tobacco industry, topic modeling.*

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INTRODUCTION

Scholars have increasingly shifted attention from defining stigma and its management to exploring the stigmatization process—how negative evaluations are created, reinforced, and disseminated (Devers et al. 2009, Dong et al. 2023, Hudson 2008, Pollock et al. 2019, Zhang et al. 2020). Despite important insights, our understanding of the dynamics underlying long-term stigmatization processes remains limited, particularly in the context of industry stigmatization (Zhang et al. 2020). In such cases, stigmatizers often face resourceful incumbents using significant resources to resist stigmatization (Ferns et al. 2021, Hsu and Grodal 2021, Wang et al. 2020). This presents both a theoretical and empirical conundrum of understanding how industry stigmatization progresses and persists over time despite continuous resistance from resourceful incumbents.

To deepen our understanding of stigmatization processes, we focus on the discursive struggles that shape these processes in our mediatized society (Piazza and Perretti 2015, Sadri et al. 2023, Wang et al. 2020). Uncovering the discursive struggles between stigmatizers, their targets, and their allies is crucial to understanding how negative evaluations are constructed, endorsed, resisted, and disseminated over time (Aranda et al. 2023). However, these discursive struggles are difficult to conceptualize in theoretical models or capture in empirical studies since they unfold over extended periods and are usually messy (Pollock et al. 2019, Zhang et al. 2020). Furthermore, the unfolding of these discursive struggles may be slower than anticipated, highlighting a critical issue that requires special theoretical and empirical attention.

In this paper, we zoom in on a revealing case: the stigmatization of the tobacco industry in the U.S. From today's perspective, it is interesting to examine not only how the industry managed to slow down stigmatization for such a prolonged period, but also how stigmatization proceeded despite this resistance. Theoretically, this case offers insights into why ongoing discursive struggles in analogous contexts may succeed or fail in establishing stigma. In fact, comparisons with the tobacco case are frequently drawn in ongoing struggles in various industries, like genetically modified foods, sugar, and fossil fuel, to name but a few. For instance, references are made to sugar as the new tobacco (Vaghela et

al. 2020) or the arrival of the “fossil fuel industry’s tobacco moment” (Kysar 2017). These examples illustrate recurrent and regular comparisons between tobacco and other industries under attack because of “a cognitive association with physical danger, severe illness, or death” (Durand and Vergne 2015, p. 1208). Therefore, while the U.S. tobacco industry is an extreme and quintessential case of industry stigmatization, it also provides valuable insights into how such processes evolve over time amidst active opposition by resourceful incumbents in other settings (Hsu and Grodal 2015, 2021). This leads us to formulate our research question as follows: How did stigmatization proceed in the tobacco industry in the face of active contestation by resourceful incumbents?

To answer this question, we followed an abductive approach where theoretical ideas were developed alongside empirical analysis (Locke et al. 2008), as is often the case in critically oriented discourse analysis (Wodak 2004). Specifically, we conducted a mixed-methods analysis of the media discussion surrounding the U.S. tobacco industry over 37 years, between 1980 and 2016. Similar to other cases of stigmatization (Piazza and Perretti 2015, Sadri et al. 2023, Wang et al. 2020), the media played a crucial role in the discursive struggles around the U.S. tobacco industry; thus, we focused on media texts in our analysis.

To dig deep into discursive stigmatization dynamics, which are challenging to pin down with conventional research methods, we integrated structural topic modeling (hereinafter STM) with a discursive analysis perspective (Aranda et al. 2021). Based on a systematic analysis of large amounts of textual data, STM is useful for uncovering evolving key topics or issues of discussion (Blei et al. 2003, DiMaggio et al. 2013). Using STM, we identified how the discursive struggles between the stigmatizers (i.e., anti-tobacco) and the industry and its allies (i.e., the pro-tobacco forces) evolved over time. We then used a discursive analysis perspective to trace specific strategies within these struggles (Maguire and Hardy 2009, Vaara 2014, Vaara and Tienari 2008).

Our abductive analysis revealed that the stigmatization process was characterized by *discursive struggles* where both stigmatizers and targets focused on specific issues and used diverse discursive strategies to advance their positions. This led us to recognize that the progressive evolution of these

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discursive struggles could be conceptualized as contested *stigma extensions*, which we define as the stigmatization of novel attributes that, even if contested, add to and amplify the industry's existing stigmatized attributes. In our case, these contested stigma extensions included a progression from establishing harm (1980-1992), to assigning responsibility (1993-2010), and ultimately creating new norms (2011-2016). Building on these distinct phases, we elucidated the mechanisms driving stigmatization processes. First, the *attention* mechanism enabled a shift of focus toward new issues, potentially triggering new discursive struggles. Second, stigmatizers engaged in *stigma construction work*, using discursive strategies to establish and reinforce stigma. Third, the targets responded with *resistance work*, using discursive strategies to delay and resist stigma. This led us to develop a process model illustrating the interplay of these mechanisms, which is crucial for understanding how stigmatization may advance even in the face of continuous resistance from resourceful incumbents.

Our paper contributes to existing research on stigmatization by offering an empirically grounded process model based on our analysis of the U.S. tobacco industry. This model elucidates how discursive struggles drive industry stigmatization, complementing prior research (Devers et al. 2009, Dong et al. 2023, Ferns et al. 2021, Hudson 2008, Wang et al. 2020, Wiesenfeld et al. 2008). More specifically, our findings reveal that the process is neither linear nor complete but characterized by partial stigmatization, highlighting the key role of discursive strategies in explaining the inherent dynamics of industry stigmatization. Furthermore, our novel mixed-methods approach, combining STM and discourse analysis, allows us to zoom out or track broad patterns of discursive struggles in the wider industry stigmatization process while also zooming in on discursive struggles at the issue-actor level. This approach helps unpack the complexities of the stigmatization process and holds significant value for future studies dealing with society-wide struggles that are challenging to capture with conventional research methods. Naturally, by focusing on the U.S. tobacco industry, our study does not offer a general theory of long-term industry stigmatization or its drivers. Future research is needed to validate these findings in other contexts and to uncover more specific mechanisms and discursive strategies used by stigmatizers and incumbents.

THEORETICAL FRAMEWORK

Stigma and Industry Stigmatization

Research on stigma originated with Goffman's (1963) work, which focused on individual-level stigma (see also Link and Phelan 2001, Pescosolido and Martin 2015). Over time, research has evolved to encompass organizational stigma, which refers to "a collective perception that the organization is deeply flawed or discredited" (Devers et al. 2009, p. 165). Stigmatized organizations suffer a broad range of negative consequences, ranging from the disengagement of key audiences to their inability to access critical resources (Pollock et al. 2019). Given these negative consequences, research has primarily focused on how the stigmatized manage stigma (Hudson et al. 2022, Zhang et al. 2020).

As research has developed, scholars further distinguished between different types of stigma that organizations face. Hudson (2008) has identified two types: event and core stigma. Event stigma is sporadic and temporary, resulting from discrete events such as bankruptcy (Sutton and Callahan 1987). In contrast, core stigma is a structural and enduring form of stigma pertaining to the activities regularly undertaken by the organization that are essential for its existence, as is the case of North American abortion providers (Augustine and Piazza 2021). Thus, core stigma represents a collective phenomenon whereby a derogatory label taints similar organizations engaged in controversial products, clientele, or practices, driving perceptions of undesirability or inferiority (Vergne 2012). For example, alcohol, tobacco, and gambling are often called 'sin industries' due to their core attributes (Grougiou et al. 2016).

The distinction between event and core stigma is particularly important when considering industry stigma, which stems from core stigma. Industry stigma occurs when organizations are collectively stigmatized for their shared values, behaviors, or practices (Grougiou et al. 2016, Piazza and Perretti 2015).¹ This stigma transcends individual organizations (Barlow et al. 2016), emerging through an aggregation process that groups together organizations involved in vilified practices or tainted outputs

¹ In this view, industries are not only complex institutional fields (Galvin et al. 2004) but also competitive landscapes (Porac et al. 2011) characterized by shared meanings and understandings (Siltaoja et al. 2020). The widespread acceptability of SIC codes (Vergne 2012), S&P indices (Porac et al. 1999) or industry certifications (Rao 1994) evidences the importance of industries as cohesive units of analysis (Weber et al. 2009) or high-level classification schemes (Hsu and Grodal 2021).

(Crocker and Lutsky 1986), resulting in a collective negative evaluation (Piazza and Perretti 2015).

Hence, stigmatized industries are a group of “profit-seeking firms that stakeholders regard as incompatible with their deeply held values, although different stakeholders will hold different values and therefore not all stakeholders will share the same judgment on the stigmatization of an industry” (Smith et al. 2022, p. 2).

Research has documented the existence of various stigmatized industries, such as genetically modified foods (Ellen and Bone 2008), gay bathhouses (Hudson and Okhuysen 2009), gambling (Humphreys 2010), arms (Durand and Vergne 2015, Vergne 2012), plus-sized fashion (Scaraboto and Fischer 2013), tattoo and cosmetic surgery (Adams 2012), mixed martial arts (Helms and Patterson 2014), marijuana (Aranda et al. 2020, Khessina et al. 2020, Lashley and Pollock 2019), tobacco (Hsu and Grodal 2021), or sex (Ruebottom and Toubiana 2020, Toubiana and Ruebottom 2022). These studies show that industry stigma is consistently reproduced across members due to their core practices, which involve participation in morally objectionable and contentious markets (Helms and Patterson 2014), thereby collectively threatening their performance and survival (Barlow et al. 2016, Piazza and Augustine 2022).

Due to its collective nature, industry stigmatization differs significantly from stigmatization at individual, organizational, or category levels. At the individual level, Wiesenfeld et al. (2008, p. 232) associated the stigmatization process with highly visible events, such as corporate failures, which are less applicable to the systemic issues faced by stigmatized industries. At the organizational level, Devers et al.'s (2009) two-step model provided an important understanding of an organization's stigmatization process. The first step involves an individual labeling process whereby the organization is negatively evaluated in cases of perceived value incongruence between its practices and generalized moral expectations. The second step is a social process whereby stigmatization results from the aggregation of collective vilifying perceptions. Despite its importance, their model may not capture the interconnected dynamics that characterize entire industries and might oversimplify how powerful incumbents challenge stigmatization. Similarly, the model developed by Wang et al. (2020) based on their study of the medical profession in China demonstrated how transgressions and resulting harm led to stigmatization, which was

intensified by disputes in what they term a “spiral of voice.” Unlike their findings, where targets were passive and unable to counteract stigma, organizations in stigmatized industries typically possess significant resources and influence, enabling them to actively defend against and shape stigmatization processes. Recently, Dong et al. (2023) introduced a two-phase model describing how the emergence of stigma leads to the transfer of stigma through association, a process less applicable to core stigmatized industries that more commonly experience similarity-based stigma transfer (Phung et al. 2020). Lastly, category-level stigmatization models, such as those described by Pedeliento et al. (2019), Ferns et al. (2021), and Hsu and Grodal (2021), offer important insights to understand the moral dynamics targeting a specific segment or product within a market, but fall short in explaining the multifaceted processes involving broader industry stigma.

Despite valuable insights from prior research on stigmatization at different levels of analysis, a significant gap remains in understanding how this process unfolds at the industry level, where assuming an analogous process may not be warranted. Hence, the collective nature of industry stigmatization makes it imperative to explore the dynamics between different industry actors that influence how stigma is constructed, challenged, and disseminated, a process that largely unfolds in and through mediatized communication (Piazza and Perretti 2015, Sadri et al. 2023, Wang et al. 2020). We thus offer a focus on discursive struggles as the missing link in understanding industry stigmatization. Discursive struggles play a crucial role because industry stigmatization requires not only the identification of a tainted attribute, clientele, or practice but also the widespread dissemination of stigma across industry members. Specifically, by exploring how industry actors use discourse strategies to either extend or resist stigma, we can uncover how a critical mass reaches a consensus to stigmatize an industry, even in the face of resistance from industry actors with the capacity to obstruct the process. A deeper exploration of the discursive struggles at the heart of stigmatization processes is thus essential to understanding long-term stigmatization processes. This is why we now focus on discourse as a critical yet overlooked aspect of industry stigmatization.

A Discursive Perspective on Industry Stigmatization

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Stigma is attached to an attribute that is deeply discrediting, not because of the nature of the attribute itself but because of the perceptions of key audiences who interpret it as inappropriate (Crocker et al. 1998, Goffman 1963). These perceptions are shaped, endorsed, and reshaped through discursive struggles between targets and stigmatizers (Pescosolido and Martin 2015). Specifically, stigmatizers use discourse to orchestrate changes in the social evaluations of targets (Ferns et al. 2021), and, at the same time, targets use discourse to navigate such changes (Siltaoja et al. 2020). Their discursive struggles create, change, and disrupt established meanings about what is (dis)approved. Discourse is thus a vital strategic resource for stigmatizers and their targets, as a change in the dominant discourse represents a change in what is deemed to conform with societal expectations (Hardy et al. 2000).

We draw on organizational discourse analysis, focusing on discursive struggles and strategies, especially in the context of (de)legitimation (Lefsrud and Meyer 2012, Vaara 2014, Vaara and Tienari 2011). This allows us to argue that discourse contributes to industry stigmatization in two ways. First, stigmatizers challenge predominant societal meanings when aiming to vilify the targets and broaden their recognition as transgressors of societal expectations. For example, in the case of bullfighting in Spain, anti-bullfighting activists used discourse to create emotional prototypes that stigmatize custodians of the practice (Valor et al. 2021). Notably, “the challengers’ discourse seldom focuses on one single individual or event, but rather, they tend to direct attention to their shared and collective nature” (Valor et al. 2021, p. 28). Discourse is thus pivotal to the emergence of stigma, allowing stigmatizers to articulate and spread their discrediting judgments (Link and Phelan 2001, Pollock et al. 2019). Second, the targets of stigma and their allies use discourse to resist stigmatization. In particular, they aim to be deemed worthy of social and economic exchange (Aranda et al. 2023). For example, in the case of organic farming in Finland, the discursive manipulation of the meaning associated with the organic label allowed the community to divert stigma (Siltaoja et al. 2020). In this sense, discourse is crucial for the targets in resisting stigmatization efforts as it provides a means for contesting the judgments of stigmatizers. Through discursive strategies, stigma targets can challenge stigmatization (Siltaoja et al. 2020). Thus, we posit that expanding consideration of the discursive struggles between stigmatizers and their targets and the discursive

strategies on both sides is a critical factor in understanding how industry stigmatization evolves over time.

The discursive struggles between stigmatizers and the stigmatized and their allies unfold in and through communication in our mediatized society. Yet, the power of the media to generate or channel attention around specific issues and drive stigmatization forward remains underexplored (cf. Sadri et al. 2023). Traditionally, scholars have pointed to the media's key role in society (Baum and Powell 1995, Gamson 1988, McCombs and Reynolds 2002), contending that what is portrayed in the media, whether positive or negative, does not emerge in isolation but is shaped by the broader context in which the media stories appear (Deephouse and Suchman 2008). In this perspective, the media are both a camera and an engine of change (Baum and Powell 1995), reflecting and shaping public opinion (Clemente and Roulet 2015). Acting as directors of public attention (Ocasio 2011) and propagators of social evaluations (Roulet 2020), the media are a key public arena where discursive struggles around stigmatization unfold (Durand and Vergne 2015, Piazza and Perretti 2015, Wang et al. 2020). This perspective views journalists and editors as gatekeepers of discursive struggles (Gans 2004) and a primary source of stigmatizing labels (Sadri et al. 2023). To develop a more in-depth understanding of industry stigmatization as a mediatized process, we now turn to the revealing case of the U.S. tobacco industry.

METHODS

To uncover how the discursive struggles between stigmatizers, targets, and their allies influenced how the stigmatization of the tobacco industry unfolded in the U.S. over time, we conducted an in-depth study between 1980 and 2016. Our abductive study covers 37 years that witnessed a steady decline in cigarette smoking, allowing us to follow the industry stigmatization process closely. In 1980, 33.2 percent of adults in the U.S. smoked cigarettes, compared with 15.1 percent in 2016 (ALA, 2020).

The year 1980 was a crucial marker in the tobacco debates when the WHO Director-General first publicly stated that “smoking is probably the largest single preventable cause of ill health in the world today” (WHO 1985, p. 48). The first gestures of a changing climate around smoking started to appear along with the consolidation of the non-smokers' rights and anti-smoking movements, leaving the tobacco industry with no choice but to “confront the proponents of restrictions on public smoking head-

on” (Bayer and Colgrove 2002, p. 950). Although significant developments happened before the year 1980, such as the influential 1964 Surgeon General’s report on smoking and health, we justify our focus on the period after 1980 since “it was not until the grassroots nonsmokers’ rights movement took hold around 1980 that per capita cigarette consumption started to drop” (Glantz 2014, p. 1). In addition, data considerations were important when selecting our period since empirical material in digital format was not available for years before 1980, and our efforts to reconstruct the data before 1980 led to only partial results and a lack of comparable material (see also King and Nelson 2023). The year 2016 provides a suitable end for our study since it reflects a critical point represented by a significant regulatory change known as the FDA deeming rule, which extended the agency’s authority over all different types of tobacco products, including the rapidly evolving market for ENDS – non-combustible tobacco products such as electronic cigarettes (FDA 2020). Moreover, in 2016, the first Surgeon General’s report on e-cigarettes and public health was published, reflecting the growing popularity and increasing market preference for these types of products over traditional cigarettes (Hsu and Grodal 2021).

Data Collection

Our analysis focused on media texts to encapsulate the discursive struggles related to collective-level stigma as they unfold via media coverage (Piazza and Perretti 2015, Sadri et al. 2023, Wang et al. 2020). Stigmatization processes are portrayed through the media because stigma requires public awareness to take hold, so the media’s capacity to spread stigma is closely linked to the potential for stigmatization and its subsequent negative consequences.

We applied a mixed STM and qualitative discourse analysis perspective to media texts when focusing on the mediatized discursive struggles that fuel stigmatization processes. The STM approach enabled us to capture the industry stigmatization process through media texts, while the discourse analysis perspective enabled us to observe the discursive struggles (Aranda et al. 2021). We concentrated on two key aspects of these struggles: the reproduction of the voices and positions of the stigmatizers and those of their targets and allies on the one hand, and the discursive strategies linked with these voices and positions on the other. In this view, their voices are the actual or edited representations of actors assumed

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to speak for or against stigmatization.

We used LexisNexis to gather data from the most important national newspapers in the U.S. We retrieved all newspaper articles with the words “tobacco,” “cigarette,” and “smoke!” (we used ‘!’ to find articles on smoke, smoking, smokers, etc.) published in the top five U.S. newspapers: the *New York Times* (or NYT), *Washington Post* (or WP), *Wall Street Journal* (or WSJ), *Financial Times* (or FT), and *USA Today* (in the spirit of Chuang et al. 2011, Fang and Peress 2009, Flammer 2012, Kim and Davis 2016). After removing duplicates, we collected 11,007 articles of varying lengths and sources, with a mean of 752 words per article within the specified study period.

Following standard practice as part of the data cleaning, we (i) filtered out standard English language stop-words (e.g., ‘you,’ ‘and,’ or ‘I’) and a small number of self-selected custom words (10 in total, including words such as NYTimes, edition, correction, or Reuters), which can hamper estimation as they carry no thematic meaning; (ii) filtered out infrequently used words (i.e., in less than 1 percent of the documents), since they are unlikely to be representative and substantially impede inference for large vocabularies (i.e., >5000 words, Roberts et al. 2013); and, (iii) converted characters to lower case for dimensionality reduction, as well as removed punctuation and numbers (Schmiedel et al. 2018). Additionally, we stemmed words (i.e., reduced words to their root form so that ‘company’ and ‘companies’ became ‘compan’) throughout the corpora (Hannigan et al. 2019). Afterward, we pre-processed the data, excluding articles without text, those with a common headline or body, and those shorter than 100 words or longer than 2500. The final corpus contained 3397 unique words, appearing close to 2.3 million times (tokens), roughly equaling 208 words per article.

Extensive secondary data supplemented the media texts to provide a complete picture of the tobacco industry (Table 1). We also gathered extensive material from previous research (e.g., Dunbar and Wasilewski 1985, Hsu and Grodal 2015, 2021, Simons et al. 2016) and several books (listed here for the interested reader Brandt 2007, Gately 2001, Kluger 1997, Miles 1982, Oreskes and Conway 2011, Proctor 2011). Table 1 offers a summary of the empirical material used in the study.

----- *Insert Table 1 about here* -----

Data Analysis

Our efforts were characterized by an abductive approach as we went back and forth between the data and theoretical ideas (Locke et al. 2008, Sætre and Van de Ven 2021), which is typically the case with critically oriented discourse analysis (Wodak 2004). Thus, we developed our theoretical ideas alongside the empirical analysis. To do so, we combined STM and a discourse analysis perspective (Aranda et al. 2021), which offered an opportunity to start from a systematic analysis of the key topics in our extensive textual material and then delve into specific texts to zoom in on discursive struggles and strategies (Brookes and McEnery 2019, Jacobs and Tschötschel 2019, Törnberg and Törnberg 2016). As indicated by DiMaggio et al. (2013), topic modeling is especially useful for discerning the topics that occur in the media, as the texts typically incorporate multiple topics that are not easily discernible to human coders. For our purposes, three conditions were necessary when selecting a topic modeling method. First, because the process of industry stigmatization involves various audiences, we needed to be able to trace topics in relation to their context (i.e., who uses them when) and to discern words that have different meanings depending on the context in which they are used – ‘polysemy’ (DiMaggio et al. 2013). Second, if topics were formed in a given context based on the co-occurrence of words, it was essential to identify words that co-occur and gain insight into the context in which they were used. Third, by being rooted in normative evaluations, industry stigmatization is a lengthy process. Thus, we needed to trace the evolution of topics over long periods, and this required analysis of extensive textual data (11,007 newspaper articles) that would have been almost impossible to do by hand systematically.

Considering these conditions, we used STM, an automated text analysis method that builds on and extends the basic Latent Dirichlet allocation (LDA) topic model (Blei et al. 2003). These topic modeling methods are similar, as they aim to reduce the complexity of large textual datasets by associating bags of words (i.e., topics) with a specific document.² However, their main difference is that

² Technically, the model captures a probability distribution of words in latent factors that are typically referred to as topics. Topic interpretability is enabled by “the statistical structure of observed language and how it interacts with the specific probabilistic assumptions of LDA” (Blei 2012, p. 79). In applications such as ours, substantive interpretability is important, and in line with DiMaggio et al. (2013) we consider topics interpretations of a phenomenon.

STM can incorporate meta-data into the estimation of the topic model (Roberts et al. 2013), while LDA cannot. Hence, STM allows inductive allocation of topics (like LDA, (Blei et al. 2003, Blei and Lafferty 2009, DiMaggio et al. 2013)) and (unlike LDA) links inductively derived topics with other variables incorporated in the model as meta-data. The inclusion of meta-data is highly relevant for our study because STM connects the specific content of a given text with the material or ideological context in which the text was produced, which is also a crucial part of a discourse analysis perspective. In other words, STM sets the stage for our subsequent discourse analysis by providing the foundation for establishing connections between texts and contextual factors that may simultaneously affect each other.

The meta-data we included in the STM per article comprises the most relevant *actors* and the calendar *year*. This choice supports our need to connect topics to actors over time. To include the time dimension, we used the article date provided by LexisNexis. To extract actors from the corpora, we used Named Entity Recognition, a Natural Language Processing technique (Nadeau and Sekine 2007). The algorithmically recognized actors were validated by identifying relevant actors using the supplementary material in Table 1 and eliminated from the text before estimation to prevent a feedback loop.³ Moreover, to facilitate estimation of the STM, we grouped individual actors into three actor categories representing the main actors in the tobacco debates (Nathanson 1999): the Tobacco Industry and its allies, the government, or anti-smoking groups (for details, see Appendix 1). By categorizing individual actors into these three groups, we systematically condensed our extensive dataset to facilitate the identification of broad patterns or trends in the data. This still enabled us – with a discursive perspective – to identify individual actors within each actor group and their associated discursive strategies. Hence, we could track the longitudinally unfolding industry stigmatization process by adding *actor* and *year* as meta-data to the STM. Nevertheless, STM is limited in providing deep theoretical insights without a sound qualitative analysis. Thus, the need for our mixed-methods approach, which complements the quantitative insights from the STM with a discourse analysis perspective (i.e., with a close reading of selected texts and a deep

³ To provide a robustness check, we estimated the STM keeping the actor names in the text and found that all topics substantively replicate (we find a correlation of .90 when comparing both solutions). We found that omitting the actor names from the text did not lead to substantive changes in the topics or our subsequent analysis.

understanding of the context in which they are produced), as described below.

Step 1: Defining and interpreting topics. To identify the appropriate number of topics, we relied on both qualitative assessments and quantitative criteria. In line with DiMaggio et al. (2013, p. 582), the objective is “to identify the lens through which one can see the data most clearly.” The ability to identify a number of substantive, meaningful, and analytically useful topics is the metric by which the solution is evaluated rather than a statistical indicator. Nevertheless, while we focused on a qualitative assessment, we employed several statistical indicators to identify a solution, as explained below.

First, we conducted a ‘grid search’ across different solutions by estimating our STM across the range of 10 to 100 topics, with increments of five. We then qualitatively inspected all individual solutions, looking at the keywords describing the topics and exemplary articles for each topic. This allowed us to label all topics in each solution (i.e., we labeled the ten different topics in our 10-topic solution, 20 different topics in our 20-topic solution, and so on), and to identify solutions that were either “overloaded” (i.e., contained too many relevant issues) or “overlapping” (i.e., contained multiple topics discussing the same underlying issue). We then tried to balance these two (Schmiedel et al. 2018). Specifically, while examining the output of the STM for each of the selected topic solutions, we aimed to identify what number of topics provided sufficient details while simultaneously minimizing the complexity associated with interpreting several topics. We defined an initial range of solutions between 40 and 60 topics.

Second, we relied on the quantitative indicators to (i) assess whether this range was desirable from a statistical standpoint and (ii) determine whether there was a specific solution that statistically outperformed any other within our candidate solutions. The statistical criteria confirmed that the 40-60 topic range was suitable (a detailed explanation is provided in Appendix 2), yet they did not indicate a preference for a specific solution within this range. We, therefore, re-inspected the solutions from a qualitative perspective. Specifically, we studied how increasing the number of topics within this range enabled a fine-grained analysis of previously broad topics and brought out new topics, whereas decreasing the number of topics bundled previously stand-alone topics together. To ensure the reliability

of our analysis, we independently re-analyzed each solution (Hannigan et al. 2019). This allowed us to make sense of the differences between solutions and understand the exclusivity of the topics within solutions (Roberts et al. 2015). This qualitative assessment indicated theoretical saturation at a 50-topic solution. Solutions with more topics (60) yielded no previously undetected meaningful and relevant topics. In contrast, analyses with fewer topics (40) omitted essential nuances.

In sum, by conducting a detailed grid search across different solutions and by combining qualitative and quantitative measures, we concluded that a 50-topic solution provided the best fit for our data. Note that the STM output combined with our extensive knowledge of the setting (acquired with a thorough reading of the supplementary material listed in Table 1) allowed us to assign a meaningful label to each identified topic. For reliability reasons, we independently assigned labels to topics and then extensively discussed these labels until an agreement was reached. Our final labels represent particular issues during our period of analysis (the complete list of topics is presented in Table 2).

----- *Insert Table 2 about here* -----

Step 2: Identifying the phases. Having made sense of the main topics in the tobacco debates, we decomposed our longitudinal study into different phases using not only the STM output (i.e., topic salience over time, see Table 3) but also insights from our exhaustive supplementary material (see Table 1). The phases are demarcated by triggers representing external milestones leading “to changes in the context that will affect action in subsequent periods” (Langley 1999, p. 703). As shown in Table 3, three phases emerged from the analysis of the STM output; the first took place between 1980 and 1992, the second between 1993 and 2010, and the third occurred between 2011 and 2016. To select the most salient topics for each phase, we identified topics with coverage exceeding the expected average around the time (i.e., one over fifty or 2%). As a result, the selected topics represent at least 50 percent of the discussion in each phase. By qualitatively exploring the most frequent words and the most relevant articles associated with the dominant topics, and through discussion among the authors, we assigned labels to each phase. Figure 1 provides a timeline of key events per phase.

----- *Insert Table 3 and Figure 1 about here* -----

Step 3: Associating actors with topics and phases. In addition to a broad understanding of the overall debate, thanks to the identification of phases in step 2, we determined which of the previously defined actors (i.e., the tobacco industry, government, or anti-smoking groups) were most associated with each topic on each phase. We used the STM output to graphically explore the relationship between actors and time for each topic as illustrated in Figure 2, which demonstrates each topic's peaks and troughs and detect the years in which a new topic emerged or when it was not used. This mapping allowed us to trace the relative prevalence of the stigmatizers and the targets in the discussions per topic (see the different colored curves), allowing us to determine differences in media coverage across actors. In short, this enabled us to trace the evolution of topics and the actor most associated with each topic within the identified phases (see Appendix 3 for a commentary). This step allowed us to identify key moments of the discursive struggles within the topics of interest, which we explored more deeply in the following steps.

----- *Insert Figure 2 about here* -----

Step 4: Selecting a sample of texts for discourse analysis. Using the STM results, we selected the articles to be included in our qualitative coding. We first read through all articles associated with the main topics for each phase – as identified in steps 2 and 3. We then selected articles for manual coding based on the STM theta estimate, which provides information on how strongly an article relates to a specific topic. We found the relevant theta estimate to be 0.6, below which the article covered the topic of interest less meaningfully. Combining the STM theta value with the date an article was published, we could identify the most representative articles for the top topics within each phase. This resulted in a stratified sample of 367 articles.

Step 5: Identification and elaboration of discursive strategies. We then focused on identifying the discursive strategies used by the stigmatizers and their targets. This meant going back to relevant research on stigmatization and drawing on adjacent work on discursive legitimation strategies (Lefsrud and Meyer 2012, Vaara 2014, Vaara and Tienari 2011). More specifically, we manually coded the 367 articles selected in step 4, guided by a discourse analysis perspective. We uploaded the selected articles in MAXQDA and proceeded in several steps. First, we coded each article for its main topic. For example,

according to the STM results, article 8234 scored high on topic 1, “Menthol cigarettes and African Americans.” We then read the article and compared whether our coding of its main topic aligned with the STM results; no discrepancies were found. With this process, we could assign articles that scored high on more than one topic to a single topic.

Second, we gathered all direct or indirect quotes from the text for each article. We then open-coded each quote in relation to the specific actor mentioned in the quote, resulting in 553 instances of actor quotes in the media texts or, on average, 1.5 quotes per article. This first round of open coding provided a refined understanding of specific actors cited in the media within the broad actor categories included as meta-data in estimating the STM. That is, we not only coded for the primary three actor groups previously identified (i.e., the tobacco industry, government, or anti-smoking groups), but we identified individual actors belonging to each group, such as smokers, lawyers, physicians, the Center for Disease Control and Prevention, the health secretary, the FDA, the Surgeon General, city mayors, state or federal officials, county councils, tobacco growers, scientists, tobacco analysts, or judges.

Third, we conducted a round of axial coding. During this iteration, we included insights from extant theory on discursive strategies in general (Suddaby and Greenwood 2005, Vaara 2014, Vaara and Tienari 2008) and those of stigmatization in particular (Hudson et al. 2022, Zhang et al. 2020). Reiterating between theory and data, we again coded all 533 quotes to identify the fine-grained discursive tactics displayed in each quote. This coding process resulted in 201 codes for what we called ‘tactics.’ For example, we identified tactics such as avoiding questions, claiming no recollection, choosing battles, cutting losses, focusing on another actor, remaining loyal, or providing no commentary. To derive the discursive strategies that form the core of industry stigmatization, we went back and forth between the codes and the STM results to group tactics together.

After several iterations, we grouped these tactics based on the relevant actor (i.e., stigmatizers or target), the phase in which they were used, and their purpose (e.g., stigma construction vs. resistance). To illustrate, tactics such as avoiding questions, claiming no recollection, or providing no commentary were grouped together. After some iterations, we reached saturation on 12 groups of tactics, which became the

basis for the discursive strategies we focused on. On the stigmatizers' side, these include revealing (exposing scientific evidence or disclosing compromising documents), elaborating (explaining the need for change in terms of moral reasoning or justification), defaming (vilifying actors for their moral transgressions), narrating (sharing narratives to promote change), exemplifying (demonstrating the success of measures and actions), and cautioning (pointing to warning signs and calling for vigilance). On the target's side, they comprise questioning (questioning the claims or credibility of the stigmatizers), downplaying (minimizing overall risks and significance of specific issues), insulating (buffering attacks by denying accusations and delaying cooperation), championing (claiming exoneration and highlighting good citizenship), distancing (distancing oneself from an issue by refusing to comment or remaining silent), and challenging (resisting restrictions and norms selectively). In all this, we realized that while specific phases were characterized by particular strategies, some strategies such as elaboration or questioning could be used across the phases, with subtle but notable differences. For examples, see Tables 4 to 7.

Step 6: Focusing on stigma extension. Having identified the discursive strategies, we focused on understanding how stigmatization proceeded from one phase to another. This led us to call the essence of this process *stigma extension*: the progression of stigmatization by focusing on novel issues or features that compound existing stigmatized attributes. We focused on three key aspects as discursive indicators of stigma extension. First, we analyzed the patterns from the STM (see Figures 3 to 5), interpreting the declining prevalence at the end of each phase as an indication of 'saturation' or 'settling' of the discussion. This pattern suggested widespread stigmatization in the first two phases, although it was partial and contested. In contrast, the third phase showed a continued increase in prevalence by the end of the observation period, indicating an ongoing struggle. Second, we qualitatively examined the relative dominance of the stigmatizers' arguments compared to those of the industry. In the first two phases, the stigmatizers' arguments were more prevalent relative to those of the industry, signaling the increasing stigmatization of the latter, even if partial and contested. By the third phase, not only were the stigmatizers' arguments more prevalent, but the industry's relative silence further indicated its

stigmatization. Third, we observed the emergence of a growing consensus on stigma extension, as evidenced by the industry's representatives publicly supporting at least some of the stigmatizers' arguments by the end of each phase, which marked a departure from their initial stance. Finally, we contextualized these discursive dynamics to understand how transitions in the discussion were linked with the strategies of key players, such as authorities serving as sanctioners.

Step 7: Developing a process model. In the final step, we combined the results and interpretations from the previous steps to develop an overarching process model. This synthesis led us to propose a pattern of progression through phases: starting from the establishment of harm, moving to the assignment of responsibility, and culminating in the creation of new norms. We then focused on uncovering the explanatory mechanisms of this progression. First, we identified that the transition *across* phases was marked by a focus on new issues – the *attention* mechanism. Second, we observed that *within* phases, discursive strategies were used by the stigmatizers to establish stigma – which we refer to as *construction work* – and by the targets to counteract these efforts – which we call *resistance work*. Below, we further elaborate on these dynamics before introducing our process model in the discussion section.

FINDINGS

Our analysis revealed three key phases: contested stigma extension by establishing harm (1980-1992), contested stigma extension by assigning responsibility (1993-2010), and contested stigma extension by creating new norms (2011-2016). The phases start with the emergence of specific issues that trigger discursive struggles, in which the stigmatizers use specific discursive strategies in their stigma construction work and the targets in their resistance efforts, eventually resulting in partial and contested stigmatization.⁴ We offer a summary of the phases focusing on the mechanisms that explain the progression of stigmatization in and through these phases.

Phase #1: Contested stigma extension by establishing harm (1980-1992)

⁴ It should be noted that although the stigmatizers and the targets used a mix of discursive strategies in each phase, the findings focus on specific strategies that were particularly important in each phase. However, such strategies could also be used in other phases, perhaps even with subtle differences.

Attention to new issues. In the early 1980s, the accumulation of scientific evidence on the harm of tobacco use had reached a critical point, leading to a widespread discussion across the US. The discursive struggles around this issue peaked at the end of the 1980s when a report by the U.S. Surgeon General affirmed that tobacco use “remains the most important preventable cause of death in our society” (SG 1989, p. iv). Figure 3 illustrates the evolution of the discussion around the establishment of harm and its high prevalence in Phase #1.

----- *Insert Figure 3 about here* -----

As shown in Figure 3, attention to this set of issues emerged during the 1980s, peaked at the end of the decade, and dwindled in the early 1990s. The main topics of media discussion usually involved factual, informative, and research-based health issues. This focus is illustrated in the vocabulary used in the most prevalent topics: *report*, *study*, *research*, *percent*, *found*, and *effect* (see Table 3). On the one hand, topics dealt with the accumulation of scientific evidence on the health hazards of tobacco use for smokers (i.e., research on the health consequences of smoking, #15), such as lung cancer (#35) or tar in cigarettes (#8). On the other hand, topics also represented the growing scientific consensus on the adverse health effects for non-smokers (i.e., the dangers of second-hand smoke, #5).

Discursive struggles. Below, we use the topic of second-hand smoke to illustrate the key discursive strategies used during the struggles over the impact of tobacco use on health, as elaborated in Table 4. Stigmatizers used primarily *revealing* (i.e., exposing scientific evidence and disclosing compromising documents) and *elaborating* (i.e., explaining the reasons for change in terms of moral reasoning or justification) strategies in their stigma construction work to create public awareness by disseminating scientific evidence. At the same time, the targets resisted by *questioning* (i.e., questioning the claims or the credibility of the stigmatizers) to prevent being associated with tainted attributes, and by *downplaying* the issues (i.e., minimizing overall risks and significance of specific issues) to avoid condemnation.

----- *Insert Table 4 about here* -----

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Stigmatizers' stigma construction work: Anti-smoking groups, together with health scientists, the Surgeon General, and associations of professionals such as flight attendants who pushed for safe working conditions, were the most relevant stigmatizers in this phase. The media highlighted the stigmatizers' focus on explaining that the tobacco industry manufactured and sold products that cause harm when used as intended. Among the various discursive strategies stigmatizers used to broadly disseminate knowledge on the pervasive damage caused by cigarettes, *revealing* scientific evidence was the most salient. In particular, stigmatizers recurrently shared scientific findings demonstrating the adverse health effects of tobacco use, not only for smokers themselves but also for non-smokers:

“Surgeon General C. Everett Koop said yesterday that ‘cigarette smoking can make a significant, measurable contribution to the level of indoor air pollution and, citing possible health hazards to children exposed to their parents’ smoke, urged parents to quit smoking. In brief, the evidence suggests that exposure to cigarette smoke may irritate lung tissue, triggering inflammation and an influx of infection-fighting cells that eventually attack the lungs” (3972, WP, 1984).

In addition, they used *elaboration* to underscore the need for change regarding forced exposure to cigarette smoke, emphasizing the moral implications associated with it. As part of their stigma construction work, stigmatizers' media appearances featured vivid and extensive descriptions of the health hazards experienced by non-smokers, of which forced, in-flight exposure of flight attendants to smoke was one of the most visible:

“‘Flight attendants are willing to give their lives to help passengers in an emergency,’ said Matthew Finucane, director of air safety and health for the association, ‘but they’re not willing to give their lives so passengers can smoke cigarettes.’ Thousands of flight attendants develop breathing problems, coughing, dizziness, and other symptoms on a daily basis, and they are also developing lung disease on a long-term basis” (8483, NYT, 1989).

Targets' resistance work: For its part, the industry mainly relied on *questioning* to attack the claims of scientific evidence presented. Specifically, the industry used this discursive strategy to maintain lingering doubts about the causal link between smoking and health issues. In mediatized discussions, for example, the Vice President of Philip Morris reiterated that “no study of exposure to tobacco smoke in workplaces or public places has demonstrated a scientifically significant risk to non-smokers” (8347, NYT, 1990). Tobacco representatives also regularly highlighted the results of medical research that countered statements by the stigmatizers:

“The Tobacco Institute had learned of the contents of the report and circulated material rebutting it earlier in the week. Its rebuttal included a reprint of a report from a workshop conducted by the National Institutes of Health, a part of the Department of Health and Human Services, which concluded: ‘A review of the data from the studies which have been carried out or are in progress which address the effect of passive smoking on the respiratory system suggests that the effect varies from negligible to quite small’” (9133, NYT, 1984).

Additionally, tobacco representatives’ media appearances featured testimonies and demonstrations to *downplay* the risk and importance of the adverse health effects of tobacco use.

“‘Looked at in the context of other alleged health hazards, cigarettes aren’t necessarily dangerous’ (a Marlboro spokesperson) said” (9154, NYT, 1984).

Stigma extension. As shown in Figure 3, the media attention given to these topics gradually declined, which suggests that the harm caused by smoking had become relatively well-established. Specifically, our qualitative analysis of the discursive struggles in this phase shows that as attention peaked, the stigmatizers’ arguments became more prevalent than those of the targets. In fact, a growing consensus around the health risks of smoking emerged through the constant reproduction of the stigmatizers’ arguments in the media, which educated the North American public about smoking as a risk factor for several diseases, such as lung cancer, affecting not only smokers but also passive smokers. This growing consensus is illustrated in the following quote:

“Dr. Homayoun Kazemi said: “I don’t think in 1992 we have to debate whether environmental tobacco smoke causes disease”. The evidence is there. (...) At the same time, a public opinion poll that found that 9 in 10 people think secondhand smoke is harmful” (7959, NYT, 1992).

This points to the potency of stigma rooted in harm and the pivotal role of health concerns in pushing the industry’s stigmatization forward.

However, stigma extension remained partial and contested. Partial because media reports indicated that a segment of the North American public still believed that there was “no conclusive scientific proof of a link between smoking and cancer” (10967, FT, 1992). This belief was sustained by long-standing mediatized assertions from the tobacco industry, such as the claim “that the hazards of secondhand smoke outside the home are greatly exaggerated” (7925, NYT, 1992), and by the support of legitimate public figures who publicly validated the industries’ arguments. For example, when Ms.

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Rozanne Ridgway, a board member of R.J.R. Nabisco, was asked, “Does smoking cause cancer?” she responded: ““I have read the medical facts on both sides, (...) I'm sure a lot of things cause cancer”” (8035, NYT, 1992). Contested because the industry’s discursive strategies forcefully challenged the stigmatizers’ arguments to sustain lingering doubts and slow down the stigmatization process. For instance,

[Dr. Homayoun Kazemi’s] “statement was sharply challenged by the Tobacco Institute, which insisted that fewer than 100 studies had been done on the effects of secondary smoke. “The weight of the scientific evidence continues to show that there is no link”” (7959, NYT, 1992).

Yet, by the end of this phase, even the industry’s representatives publicly conceded and agreed with the stigmatizers’ arguments. For instance, they began to explicitly acknowledge the hazards of smoking:

“Today the official line from the Tobacco Institute is: “We recognize the risks associated with smoking; at the same time, there is virtual universal awareness by the public of those risks”” (7982, NYT, 1992).

Thus, the widespread media coverage of harm discussions was crucial for the extension of stigma beyond the stigmatizers and specialized audiences toward general audiences.

Discourse in context: Transition between phases. The relative success of the stigmatizers facilitated a shift in attention whereby smokers were no longer solely to blame for smoking-related health problems and the industry was no longer seen as blameless.

“Although cars, alcohol, and handguns all kill when misused, critics say, cigarettes are the only legal substance that causes death and disease when used as intended. And since most smokers have tried to quit, they argue, smoking is an addiction, not a choice. Government figures estimate that 434,000 Americans a year die from smoking-related causes, a figure higher than the deaths caused by alcohol, illegal drugs, car accidents, murders, and the AIDS virus combined. The industry’s defenders argue that the hazards of cigarettes are widely known and that tobacco is highly regulated. They say smokers make their own decisions, and regard the anti-smoking watchdogs as paternalistic nags. (...) After all, cigarettes remain a legal product, in an industry that creates hundreds of thousands of jobs and donates millions of dollars to charities. (...) But the dispute clearly goes deeper, revealing the mix of anger and acceptance in public attitudes toward the tobacco industry” (8035, NYT, 1992)

The attention shift from the product to the companies was also championed by sanctioners such as the Supreme Court, which allowed smokers to file damage lawsuits against the tobacco companies, a move that was interpreted as “nothing but trouble for the industry” (3105, WP, 1992). This increasingly

critical stance facilitated the evolution of the discussion, transitioning from a focus on harm toward assigning responsibility:

“There is the simple truth: Cigarettes contribute to the deaths of hundreds of thousands of people every year. One of them may be someone you love. And if you hold a person’s hand and watch her die, it seems to me that your only choice afterward is to go after the killer.” (7982, NYT, 1992).

Phase #2: Contested stigma extension by assigning responsibility (1993-2010)⁵

Attention to new issues. Before the 1990s, several lawsuits were filed to hold the tobacco industry accountable for the dangers of cigarettes. The tobacco industry had won all of them by arguing that smoking was an individual’s choice and asserting that smokers accepted its associated risks upon deciding to smoke. However, following the shift in attention to the issue of responsibility, in this second phase, the tables turned in favor of the plaintiffs. This shift was built on the increasing consensus about the health effects of smoking, which invalidated the industry’s personal responsibility rhetoric and allowed individual plaintiffs to win several tobacco lawsuits. Following the accumulation of rulings against the industry, the then-largest tobacco companies and the Attorneys General of 46 states signed the Master Settlement Agreement (hereinafter MSA, #37) in 1998. The MSA received significant media coverage for exposing the tobacco companies’ “40 years of lies, conspiracy, and deception” (2303, WP, 1997), and for holding them accountable for damages to public health from “making a defective product that causes a host of diseases” (10566, WSJ, 1999). This deal was a pivotal event for the tobacco companies since it established a foundation for further assigning responsibility via regulations.

Figure 4 illustrates the evolution of the discussion around a set of issues dealing with assigning responsibility and the high prevalence thereof during the late 1990s – early 2000s. The graph shows that attention to these issues grew exponentially during the mid-1990s and then plummeted after the aughts. When examining this period closely, it becomes clear that it encompasses two peaks: an early peak

⁵ Please note that this second phase includes two parts that could be seen as phases of their own, but we present them together because both contribute to assigning responsibility. In other settings, where responsibility is attributed primarily in one manner, a single peak may be observed.

around 1998 and another around 2005. These two peaks represent the two different ways responsibility was assigned in our setting.

----- *Insert Figure 4 about here* -----

The first peak represents a judicial discussion, illustrated by the most prevalent words used in the media during this period, such as *legislation, lawsuit, lawyer, case, state, attorney, documents, vote, and political* (see Table 3). The judicial discussion centered on assigning responsibility to the industry due to its deception about nicotine's addictiveness, strategies to attract new smokers, and concealing of the negative consequences of smoking. The main topics were directly related to judicial action, such as the Federal Tobacco Suit (#27) filed in 1999, in which the federal government accused "the industry of a 50-year racketeering conspiracy to mislead the public about the health dangers of smoking" (9519, WSJ, 2001). Topics that symbolized the structural changes happening in the industry were also central, such as the voiding of the exorbitant verdicts and rulings granted by juries in various states on lawsuits against the industry (Punitive and compensatory damage awards for smokers, #2).

The second peak thus represents the regulative discussion, illustrated by the vocabulary used in the media, such as *regulation, state, ban, tax, increase, and decision* (see Table 3). The main topics discussed were the increasing enactment of smoking bans in all kinds of places across the U.S. (Smoking bans in the hospitality industry, #38) or abroad (International anti-smoking efforts, #16), and a continuing upsurge in cigarette taxes at the state level (Tobacco taxes – state, #17). Given two distinct peaks during this phase, we zoom in on each peak to examine the discursive strategies used per peak.

Discursive struggles during the first peak. In the judicial discussion, the topic of nicotine dependence was central, helping to illustrate several discursive strategies used by stigmatizers and targets during the struggles over the industry's accountability. Stigmatizers attempted to hold the industry accountable for its misconduct and wrongdoing by using again *revealing* but also *defaming* (i.e., vilifying individuals and companies for their moral transgressions). The tobacco industry and its allies, in turn, sought to slow down the stigmatization process through a combination of *questioning* (i.e., questioning the credibility of the stigmatizers and their claims) and *insulating* (i.e., buffering attacks by denying

accusations and delaying cooperation). The discursive strategies used during the first peak are elaborated in Table 5.

----- *Insert Table 5 about here* -----

Stigmatizers' stigma construction work: The stigmatizers aimed to extend the stigma from cigarettes as a product to the behaviors and actions of the industry. They attempted to create disapproval of the industry not only for what it sells but also for 'who it is.' In their media appearances, they focused on holding the industry accountable for knowingly selling harmful products and suppressing evidence. The most relevant stigmatizing actors were state officials, judges, juries, lawyers, and anti-smoking activists, who claimed that the tobacco industry had long known about the adverse health effects of tobacco use and the addictive nature of nicotine. For example, during a congressional subcommittee meeting in 1994:

“[T]he chairman and chief executive of the Brown & Williamson Tobacco Corporation (...) was shown scores of documents from his company’s files over the last 40 years and was pressed by Democrats on the subcommittee to acknowledge that they suggested that nicotine was the central ingredient in tobacco, that it was addictive and that the company had made use of that in designing cigarettes to keep its customers addicted” (7748, USA Today, 1994).

Stigmatizers used a *revealing* strategy especially to disclose judicial evidence from internal company documents during the tobacco lawsuits by accusing the tobacco industry of acting in its own interest and even lying. Their efforts gained significant media coverage when it became clear that the industry had systematically concealed evidence of nicotine dependence (#20). For instance, the stigmatizers achieved a victory with the testimony of J.S. Wigand, former head of research from Brown & Williamson, who corroborated the industry’s deceptive practices:

“Mr. Wigand has said Brown & Williamson officials destroyed compromising documents, lied about their knowledge of the danger of tobacco, suppressed research into safer cigarettes, and recklessly used harmful additives in cigarettes” (7104, NYT, 1996).

Moreover, during the mediatized lawsuits, stigmatizers used a discursive strategy of *defamation* to focus attention on devaluing the industry, thereby extending stigma beyond the established unhealthiness of cigarettes to their business practices, such as targeting children:

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“Each year, the tobacco companies have to replace two million American smokers. A million and a half kick the habit annually. Another half-million or so are bulldozed into early graves because they couldn’t quit. If the lifestyles of the tobacco bigs are to be preserved, annual replacements for those two million Americans must be found. Now, where do we think the companies look for those brand new smokers? Hint: Nearly all adult smokers began smoking as children” (7048, NYT, 1996).

Targets’ resistance work: In response, the industry and its supporters predominantly used *questioning* to specifically challenge the credibility of the stigmatizers. In their mediatized appearances, the industry argued against the stigmatizers and their claims in court. For example, they referred to the stigmatizers as a “small coalition of anti-smoking zealots” (8234, NYT, 1990). They also focused on slandering key whistleblowers such as Mr. Wigand:

“Although Mr. Wigand received positive performance reviews throughout most of his tenure with the company, Brown & Williamson’s lawyers now characterize him as a ‘shoplifter, spouse abuser and chronic liar’ who was dismissed for abusive behavior to co-workers and ‘misrepresenting his work’” (7102, NYT, 1996).

In addition, the industry also used a strategy of *insulating* to shield itself against claims and accusations. They insulated themselves in the media by denying, delaying, destroying, or withholding judicial evidence. For example, Brown & Williamson rejected all allegations brought forward by their former head of research, Mr. Wigand:

“A Pascagoula, Miss. Lawyer who represents Mr. Wigand [commented] “If he committed perjury, then they obstructed justice. He was prepped by their lawyers and instructed what to say.” Brown & Williamson have denied all such accusations” (7102, NYT, 1996).

This could also include the intimidation of the stigmatizers as well as their potential allies, aiming to deter them from pursuing legal action:

“In response to the paper’s article, Brown and Williamson warned C.B.S. in a letter that it would hold the network legally responsible for any libel included in the transcript. A Brown and Williamson spokesman said (...) that the network had induced the executive to break his agreement with the tobacco company” (7254, NYT, 1995).

They also recurrently pointed to mischaracterizations of company documents by stigmatizers who “pollute the jury pool with their tactics” (2578, WP, 1996).

Discursive struggles during the second peak. For the regulative discussion, the topic of smoking bans was central, illustrating more of the relevant discursive strategies used by the stigmatizers

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and targets of stigma in the struggles over the industry's accountability. The former used *elaborating* (i.e., explaining the need for change in terms of moral reasoning or justification) and *narrating* (i.e., sharing narratives to promote change) strategies to raise public awareness of the need for regulative accountability. In contrast, the latter used again *questioning* and *championing* (i.e., claiming exoneration and highlighting good citizenship) strategies to counter the extension of stigma. Table 6 summarizes the discursive strategies used during the second peak.

----- Insert Table 6 about here -----

Stigmatizers' stigma construction work: At this peak, the most relevant stigmatizers were state officials, lawyers, and city governments who pushed for local smoking bans in the hospitality industry (#38). However, new stigmatizing actors emerged, such as restaurant and bar owners, who called for separating smokers and non-smokers (Smoking bans in the hospitality industry, #38). Moreover, tobacco growers, who had historically allied with the tobacco industry in opposing restrictions, became stigmatizing actors who encouraged others to switch to alternative crops through regulated tobacco buyout programs (Tobacco farmers, #30).

The stigmatizers mainly relied on *elaborating* when visibly promoting the need for regulation to further assign responsibility for the industry's wrongdoings. They recurrently focused on the need to enact tobacco control policies by displaying their positive impact in the media. For example, in 2000, the Montgomery County Council:

“Approved the nation's strictest tobacco ban, prohibiting smoking on all public property, including sidewalks and streets, in the village of Friendship Heights. (...) ‘It's a public health issue,’ said Muller, a physician who has served as mayor for 25 years. ‘We don't have the right to outlaw tobacco, but we're doing what we can within our rights’” (1484, WP, 2000).

At the end of this phase, the stigmatization process was further fueled by new and emerging stigmatizing actors, who provided *narrative* examples in the media about their approval and adaptation to the tobacco control regulations:

“‘Personally, I'm pretty much anti-smoking,’ says Bill Duggan, owner of the popular Madam's Organ restaurant and bar. (...) When the first phase of Washington's smoking ban went into effect about two weeks ago, hundreds of restaurateurs were required to make their ‘dining areas’ smoke-free. (...) After mulling his options, Duggan decided that the stage in the front window

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and the dance floor in front of it counted as ‘bar area’ because they are flanked by the main bar. A table-filled mezzanine that overlooks the stage – raised about four feet above the floor – was designated the dining area” (737, WP, 2006).

Their testimonies reflect the profound potential impact of establishing limits to the industry’s practices, as these bans imposed large-scale structural changes on the industry that further extended stigma.

Targets’ resistance work: The industry, in turn, mainly used *questioning* to resist and mitigate the spread of stigma. While the industry made some public concessions to regulatory oversight, it simultaneously challenge the effectiveness of the laws and the credibility of those who enacted them. For example, in its mediatized appearances, it argued that the regulations were politically motivated and would not affect smoking rates. The industry’s discourse was echoed in the media by their allies:

“It irritates me to no end,” said Scott Matheson, a bartender at Hunter’s Steakhouse in Rockville, estimating that 70 percent of his tips come from smokers. “If I didn’t want to work in a place where there was smoke, I’d find another job.” County restaurant owners predict sales could drop about 25 percent as smokers leave for neighboring communities where smoking is allowed” (1555, WP, 1999).

At the same time, building on the developments during the first peak, the tobacco industry focused on *championing*. This included claiming exoneration when lawsuits went through several appeals and ultimately ended in “multibillion-dollar fines” being “drastically reduced” (10660, FT, 2014). For example, the case of the Federal Tobacco Suit (#27), ended with a “huge victory for the six largest tobacco companies” since the federal appeals court rejected the government’s attempt to recover “the profits the industry made selling cigarettes over three decades” (818, WP, 2005).

Stigma extension. As shown in Figure 4, the two peaks in the media discussion in this phase were followed by a gradual decline in attention, which suggests that the accountability of the industry and the need for regulation became increasingly well-established. Specifically, our qualitative analysis of the discursive struggles shows that after the peaks, the stigmatizers’ arguments were more prevalent, even if they were still contested. After the first peak, the discussion around accountability converged on the industry’s responsibility to compensate for the health costs of smoking:

“State attorneys general (...) argued that tobacco firms, not smokers, were responsible for addiction and that industry therefore should compensate taxpayers for the cost of treating patients with smoking-related illnesses” (1363, WP, 2007).

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After the second peak, the regulative discussion effectively prioritized public health concerns over individual freedoms, thereby paving the way for a more transformative approach to assigning responsibility via tobacco control regulations:

“How can we balance the need for freedom and privacy with the need for regulation and accountability? Practical limits have got to be set on government interference with personal liberty. But because the harm people do to themselves has an impact on others’ wallets and welfare, some limits must also be set on individual conduct” (683, WP, 2007).

However, the extension of stigma remained partial and contested. Partial because this phase marked a significant but still polarized shift in public attitudes toward smoking in the U.S.. On the one hand, stigmatizers were able to ratchet up the social unacceptability of smoking, as noted by Dan Glickman, chairman of the Motion Picture Association: “Clearly, smoking is increasingly an unacceptable behavior in our society” (659, WP, 2007). On the other hand, advocates for smoking rights “were not pleased” with the increasing restrictions, as evidenced in their arguments such as “we believe it is discrimination” (764, WP, 2006). Contested because the industry’s counterarguments slowed down the stigmatization process and maintained lingering doubts. For instance, “Peter Nixon, a vice president and spokesman for Philip Morris International, said the company’s lawsuits were intended to combat what it felt were “excessive” regulations” (4833, NYT, 2010).

Nevertheless, even the tobacco industry’s representatives were increasingly acknowledging the need for some accountability and regulations, indicating a further extension of stigma. In fact, during this period, some tobacco representatives noted that regulation was inevitable and even championed clear standards for the industry:

“‘At some point, this is going to happen,’ said Steven C. Parrish, Altria’s senior vice president for corporate affairs. ‘It would set some clear rules for all the companies to lay by’” (5062, NYT, 2007).

There were also public admissions such as that by Peter Nixon, a vice president and spokesman for Philip Morris International, who said: “Philip Morris agreed that smoking was harmful and supported “reasonable” regulations where none exist” (4833, NYT, 2010).

Discourse in context: Transition between phases. The acceptance of responsibility by the industry was not only rhetoric as some companies were also involved in the introduction of new regulations. “For instance, Philip Morris USA, a division of Altria Group, helped negotiate and supported the anti-smoking legislation passed by Congress last year” (4833, NYT, 2010).

The relative success of the stigmatizers in extending stigma through a focus on accountability was linked with structural changes in the company’s institutional environment. This phase saw most lawsuits settled and regulations fostering smoke-free environments gained widespread acceptance. The assignment of responsibility played a crucial role in the enduring extension of stigma because the changes implemented during this phase made it exceedingly difficult for tobacco companies to counteract the normalization of smoke-free environments. This was indicated by Russell Sciandra, a tobacco policy specialist for the American Cancer Society:

“In the more than six years that this law has been in effect, we’ve found that the health benefits of a smoke-free workplace are even greater than we expected. To allow anyone to blow a hole in the city and state laws is unconscionable” (4768, NYT, 2010).

By the end of this phase, the extension of stigma, accelerated by the actions of state sanctioners, enabled the stigmatizers to focus attention on a new discussion:

““We’ve known for a long time how dangerous tobacco use is. How do we move to the next step and give the public the tools for behavior change, to make the right decision for themselves?” (393, WP, 2011).

Phase #3: Contested stigma extension by creating new norms (2011-2016)

Attention to new issues. The broadly recognized consensus on the industry’s responsibility for the ‘tobacco epidemic’ paved the way for a new environment where tobacco use has, to a certain extent, become ‘uncool’: “That white stick that you burn down is probably the most successful consumer product of all time, but there’s all this stigma attached to it now” (10097, WSJ, 2013). Figure 5 illustrates the evolution of the discussion around a new normative environment and its prevalence in Phase #3.

----- *Insert Figure 5 about here* -----

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As shown in Figure 5, attention to the new normal environment increased continuously during the 2010s. This is illustrated in the vocabularies used during this period, including *smoke, use, public, anti, smoke, smoker, percent, quit, people, product, tobacco, warn, label, require, park, addict, film, movie, and art* (see Table 3). Topics in this period concerned the downstream effects of tobacco regulations, such as state tobacco taxes (#17), laws on packaging (#47), and product placement in movies (#24), which followed increasing efforts by the FDA to control tobacco products (FDA authority over cigarettes, #31). Overall, the topics provide evidence of the progress towards stigmatizing the industry, as reflected in decreasing youth smoking rates (#3) and support for smoking cessation (#25) programs.

Discursive struggles. The topic of the FDA’s authority over cigarettes illustrates the discursive strategies used by stigmatizers, *exemplifying* (i.e., demonstrating the success of measures and actions) and *cautioning* (i.e., pointing to warning signs and calling for vigilance), and by the industry and its supporters, using *distancing* (i.e., distancing oneself from an issue by refusing to comment or remaining silent) and *challenging* (challenging restrictions and norms selectively). Table 7 elaborates on the main discursive strategies used in this phase.

----- *Insert Table 7 about here* -----

Stigmatizers’ stigma construction work: The most relevant stigmatizing actors in this phase were the government and anti-smoking groups who, in their mediatized appearances, could now publicize behavioral changes, reflect on the progress concerning smoking rates, and present new measures to dissuade people from smoking. For most, stigmatizers used a discursive strategy of *exemplifying*. They repeatedly highlighted successful health measures and decreasing smoking rates in the media: “Fewer U.S. adults are smoking, and those who do light up are smoking fewer cigarettes each day” (396, WP, 2011). The specifically focused on publicizing the progress with a group that most agreed should not smoke: “the proportion of students who reported ever trying smoking has dropped sharply” (10088, WSJ, 2012).

However, due to the partial and contested nature of the industry’s stigmatization, they also called for *caution*:

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“There’s a lot of people trying to do good policy work, but it seems like every time we get a handle on the products out there, it changes,” Johnson said. “We ban blunt wraps, and describe them as ‘brown paper’ in the city ordinance, and all of a sudden there are green blunt wraps” (455, WP, 2010).

And repeatedly acknowledged the need to remain vigilant:

“‘There are some success stories and some notable failures’, said Michael Eriksen, director of the CDC’s Office on Smoking and Health. ‘Overall, the states are not doing as well as we would like to see’” (1357, WP, 2010).

The exercise of the FDA’s authority over the industry, notably through graphic warning labels that should “get people’s attention” (4714, NYT, 2011), was a widely mediatized measure that further extended stigma in this phase:

“Dr. Lawrence R. Deyton, director of the FDA’s Center for Tobacco Products said the government estimates, based on other countries’ experience, [was] that the new warning labels will prompt an additional 213,000 Americans to quit smoking in 2013, the first full year with the graphic labels.” (4714, NYT, 2011).

Targets’ resistance work: Given its partial stigmatization, the industry used a discursive strategy of *distancing*. This is evident in their relatively limited involvement in mediatized discussions during this phase. The tobacco industry’s absence from the media could have been deliberate, either because they chose not to engage or, conversely, because they were denied a voice. In either scenario, we observe the usage of distancing as a resistance strategy in the media texts. When prompted by the media to provide comments, industry representatives often sought to distance themselves from these issues by refusing to comment, as exemplified in the controversy on graphic labels:

“Altria Group Inc., parent of Philip Morris U.S.A., the largest U.S. cigarette-maker, (...) did not comment on the proposed graphic-warning labels” (10161, WSJ, 2010). Similarly, “Gregg Perry, a spokesman for Lorillard Tobacco, said on Tuesday that the company was reviewing the graphics and would not comment at this time” (4714, NYT, 2011).

However, the industry simultaneously fought selected battles using a discursive strategy of *challenging*, and they carefully chose to contest further bans. Indeed, tobacco representatives turned their attention to issues where they had a legitimate business interest, such as opposing additional control by the FDA:

“Some cigarette manufacturers vowed to fight the labels in federal court, saying they infringe the companies’ property and free-speech rights. (...) ‘The use of graphic warnings makes no

contribution to the awareness of these risks and serves only to stigmatize smokers and denormalize smoking,' said Anthony Hemsley, a vice president at Commonwealth Brands, the maker of U.S.A. Gold cigarettes'" (4829, NYT, 2010).

This quote also illustrates how the health hazards of tobacco use became taken for granted because the industry no longer questioned their existence and merely pointed to the public's "awareness of these risks" (4829, NYT, 2010).

Stigma extension. By the end of the observation period, discussions about new norms were still ongoing (see Figure 5). A close examination of the media texts revealed that the stigmatizers' arguments were more prevalent than the industry's claims in this final discussion. In particular, arguments emphasizing the undesirability of smoking gained traction in the media, making it increasingly difficult for most smokers to justify any benefits from their habit: "Americans quit smoking cigarettes in droves, abandoning the once beloved habit on a scale that was hard to imagine" (28, WP, 2016). Their mediatized arguments reinforced a normative environment where "cigarettes are no longer cool" (221, WP, 2014), and the decline in smoking rates is viewed as "an overwhelmingly positive thing" (28, WP, 2016).

However, the extension of stigma remained partial and contested. Partial because the stigma was, in some texts, classified as unfair since "most people get hooked on cigarettes as impressionable teenagers and quitting is extremely difficult because nicotine is more addictive than cocaine" (390, WP, 2011). Contested because of the counterarguments from the industry, which despite its relative silence in this phase, persistently worked to prevent the complete stigmatization of smoking.

"Together, the tobacco executives' [goal was] (...) to muddy the waters and create a second truth. (...). The tobacco industry's success in manufacturing its own truth won it decades of increased profits, even as it put the lives of millions of Americans at risk. (...) Now anyone with an Internet connection can read the full details of the tobacco industry's expensive efforts to create an alternate set of facts about its products." (69, WP, 2014).

Discourse in context: Increasing sanctions and transition to a new target. This mediatized discussion both reflected and promoted concrete decisions and actions, which resulted from extensive litigation, smoking bans in enclosed public spaces, and rising costs per cigarette pack, forging a new environment in which the stigmatizers consolidated their success in extending the social disapproval of the industry. The extension of stigma was such that even companies in other industries decided to stay

away from tobacco products:

“In much of the discussion about smoking and health, the emphasis has been on action by government or society - higher excise taxes, stronger regulation, more public education campaigns. (...) But there has always been a question about what to do next to curb tobacco use. (...) The effort to curb smoking began with small text-only pack warnings and moved on to indoor smoking bans, restrictions on advertising and promotion, media campaigns and tax increases. Now, a major retail chain is standing up to be counted - declaring “CVS quits for good” - and that is a bright spot in a long, unfinished struggle to end habits that are proven to kill” (181, WP, 2014).

Interestingly, our analysis indicates that by the end of our observation period, the focus shifted from the tobacco industry to e-cigarettes due to their surging popularity, which attracted the attention of stigmatizers:

“There’s widespread disagreement about their safety or any benefits they may have. Proponents say that e-cigs, a \$2.8 billion market in the United States, are potentially less harmful than conventional cigarettes and can help smokers quit. Critics say that their safety hasn’t been proved and that it’s too soon to know what the long-term effects of “vaping” (inhaling the vapor) may be” (12, WP, 2016).

The rising popularity of e-cigarettes, coupled with the lasting and persistent stigma associated with the tobacco industry, ignited a new parallel discussion at the end of this phase:⁶

“Public health experts sound alarms about the popularity of e-cigarettes threatening to reverse decades of declining tobacco use due to aggressive public health campaigns and social stigma around cigarettes” (60, WP, 2016).

DISCUSSION

The starting point of this paper is a puzzle: How did stigmatization proceed in the tobacco industry in the face of active contestation by resourceful incumbents? To answer this question, we adopted a discursive perspective and focused on the media coverage of the U.S. tobacco industry between 1980 and 2016.

Overall, our study provides two key contributions, as outlined below. First, we offer a discursive process model, which advances previous research by revealing a pattern of how industry stigmatization may

⁶ Note that after examining the content of this discussion, we observed that the increasing prevalence in Figure 5 may be due to the comparisons between traditional cigarettes and e-cigarettes across several attributes. For instance, media coverage highlighted that e-cigarettes were considered less harmful than traditional cigarettes, with some articles suggesting their potential effectiveness as smoking cessation tools despite ongoing research on their health. Additionally, media reports frequently emphasized the rising popularity of e-cigarettes among youth, driven in part by their high nicotine content and the lack of regulations on these products, which spurred calls for e-cigarettes to be regulated similarly to traditional cigarettes. Therefore, the increasing prevalence in the third phase can be partially explained by the media’s focus on e-cigarettes as a potential substitute for traditional cigarettes (for studies on this topic, see Hsu and Grodal 2021).

proceed, even if it is contested, and by elucidating three key mechanisms driving this process. Second, our analysis demonstrates the methodological benefits of integrating STM with a discursive analysis perspective to examine the structure and dynamics of stigmatization processes in various contexts.

A Discursive Model of Industry Stigmatization

The main contribution of our analysis is an abductively derived discursive process model that unpacks the key elements of industry stigmatization, helping to explain how such a process can move forward even if it faces resistance from resourceful incumbents. Figure 6 provides an illustration of the model.

----- *Insert Figure 6 about here* -----

A Pattern of Stigmatization Dynamics. Previous studies have pointed out that stigmatization is rarely a linear process but an ongoing one (Chang-Zunino and Grodal 2024, Ferns et al. 2021, Hudson 2008, Lashley and Pollock 2019, Wang et al. 2020). We add to these insights by highlighting a specific pattern of industry stigmatization involving stigma extensions, where the key idea is that the stigmatization process moves forward by emphasizing new issues or features that add to previously stigmatized attributes. In our model, this happens when transitioning from one phase to another marked by a shift in the focus and nature of the discursive struggles. While previous research has pointed out that industry stigmatization is based on negative evaluations of the industry attributes that override positive ones (Pollock et al. 2019, Zhang et al. 2020), our analysis reveals that these evaluations may first focus on some aspects, such as established harm, after which stigma may be extended to responsibility and finally norms, thus elucidating the gradual progression in how such evaluations are formed.

Another key part of the model is that it shows how stigma extensions tend to be partial and contested. Although not a typical view in stigma research, it resonates with insights from some previous studies. For example, Hudson (2008, p. 258) has asserted that actors “can simultaneously be perceived positively by some audiences and negatively by others.” Similarly, Wang et al. (2020) show in their analysis of the medical profession that stigmatization may oftentimes be partial. Our analysis adds to these and other findings by revealing how discursive struggles allow the stigmatization process to progress, even if it is partial and contested.

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Specifically, our model outlines a pattern progressing from the establishment of harm to the assignment of responsibility, culminating in the creation of new norms. While this progression may be case-specific or idiosyncratic, the model can, with due caution, also apply to other contexts. For example, in the case of sugar, soda companies have been found to use many of the same strategies once used by the tobacco industry to “divert the blame for obesity away from sugar” (Lambert 2017). We also observed similar discussion patterns with the “Exxon knew” campaign in the fossil fuel industry (Supran and Oreskes 2020). Hence, this pattern may also be found in other industries, provided they are subject to recurring discourse struggles over their appropriateness. Yet the outcome may be different, as is the case of gambling, which seems to be growing in acceptance despite well-known harms (Humphreys 2010). In such cases, the targets may be able to revert to the gradual stigmatization pattern either because of a lack of success on the part of the stigma construction work or because of particularly effective resistance on the part of the stigmatizers. Thus, there is a need to complement our analysis with other cases showing opposite patterns, such as the (de)stigmatization of the marijuana industry (Aranda et al. 2020, Khessina et al. 2020).

In terms of boundary conditions, although our model suggests that the process often starts with the establishment of (physical) harm, this is not always necessary. Stigmatization can arise from *perceived* moral harm, whether psychological or social, or from behavior that is *perceived* as deviating from social norms. Our model proposes that the stigmatization process begins when an issue that sets an industry apart (i.e., physical harm) is negatively portrayed in the media. This leads to the formation of negative evaluations, which stigmatizers then aim to perpetuate and reinforce, among others, by establishing responsibility. Although in our model, the establishment of responsibility was done via *formal* legal, judiciary, and regulatory systems, *informal* systems such as social networks could also play a role in the extension of stigma. However, the role of influential and powerful sanctioners, such as in our case, likely makes the extension of stigma more entrenched and pervasive compared to informal mechanisms, which may be more transient. Lastly, our model suggests that for stigma to become deeply rooted and established, social norms that support the negative evaluations of the industry need to be

widely accepted and embedded in the societal fabric, so that the stigma does not dissipate despite efforts to counteract it. Given that social norms are the foundation through which issues are negatively labeled, without changing these norms, stigma would likely be neither constructed nor perpetuated. To what extent this is the case remains, however, a question to be tested and explored in future research.

Uncovering the Mechanisms that Drive Industry Stigmatization. Importantly, our model highlights three theoretical mechanisms that drive the discursive stigmatization processes: the *attention* mechanism, enabling a focus on new issues and struggles; *stigma construction work* by the stigmatizers, serving as the mechanism for establishing stigma; and *resistance work* by the targets, explaining why industry stigmatization tends to be partial and slow to develop. Together, these mechanisms contribute to our understanding of how stigma is extended and how stigmatization processes move forward, even when partial and contested.

Attention mechanism. The first mechanism is pivotal for understanding the dynamics of stigmatization processes. This mechanism explains how new issues emerge and how discussions transition from one issue to another. Specifically, our model suggests that in stigmatization processes, attention to sets of issues emerges, reaches a peak, and ultimately wanes. Hence, the attention mechanism helps to understand the transition between phases as it underpins fluctuations in attention toward issues, tracking their rise and decline. The former occurs when new information emerges, questioning the appropriateness of the industry's product, behavior, or users. The latter occurs after an attention tipping point leads to decreasing attention to current issues and paves the way for new sets of issues to emerge. Although expected, this is not a trivial finding but a result that validates the idea of phase- or stagewise progression even in messy long-term stigmatization processes.

By revealing the key role of attention, our analysis adds to prior research on adjacent themes in stigmatization. In particular, the attention mechanism is akin to amplifying stigma, as it also refers to the process where heightened scrutiny of the target intensifies its vilification (Dong et al. 2023). However, it differs from amplification, which relates to the transfer of stigma, by explaining how stigmatization may move from one issue and core attribute to another one, thus explaining how stigma extensions take place.

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Specifically, we show how the media bring visibility to the attributes deemed undesirable, inappropriate, or immoral and how visibility is key for mobilizing attention and for reinforcing the industry's negative evaluations (Chang-Zunino and Grodal 2024).

Stigma construction work. The second mechanism encompasses the establishment of stigma, driven by the stigmatizers and their discursive strategies. In the first phase, stigmatizers utilized *revealing* and *elaborating* strategies to establish and spread stigma based on scientific evidence highlighting the harm caused by the industry's product. Transitioning into the second phase, *revealing* and *elaborating* but also *defaming* and *narrating* were employed to hold the industry accountable for its misconduct and wrongdoing. In the third phase, when stigma was further extended to users, stigmatizers focused on *exemplifying* the success of their efforts and *cautioning* against complacency.

By identifying and detailing the discursive struggles unique to each phase, we offer deeper insights into the variety of discursive strategies employed during stigmatization processes (Piazza and Perretti 2015, Vergne 2012). As one might expect based on adjacent research on legitimation (Lefsrud and Meyer 2012, Suddaby and Greenwood 2005, Vaara 2014), this includes a combination of authority-based constructions, rational or fact-based arguments, moral considerations, and narratives about the future. What is new and specific to our analysis, though, is that it helps to see how such arguments focus on phase-specific dynamics. In particular, revealing and elaborating were the key strategies used in rational argumentation by the stigmatizers in the first two phases, but they focused on somewhat different things. It is also noteworthy that strategies such as defaming and cautioning may play a crucial role in specific stages of stigmatization.

Resistance work. Unlike the previous mechanisms, resistance is driven by the counterforces originating from the targets of stigma. In the initial phase, the targets sought to reverse the extension of stigma by sowing lingering doubts. Employing *questioning* and *downplaying* strategies, their aim was to perpetuate controversy, impede any progress by stigmatizers, and prevent the emergence of stigma. In the second phase, the industry vigorously aimed to counteract the growing stigma and to support lingering doubts through *questioning* but also by *insulating*, and *championing* strategies. In the third phase, in turn,

the industry *distanced* itself from morally charged issues, even as it resorted to using *challenging* strategies to fiercely confront stigmatizers by selectively focusing on factual issues.

This mechanism plays a crucial role in understanding how resourceful incumbents prolonged the avoidance of stigmatization. On the one hand, the resistance mechanism helps us grasp the inherently *partial* nature of industry stigmatization processes and emphasizes the necessity of moving beyond binary perspectives where industries are either stigmatized or not (Helms et al. 2019). Indeed, our findings show that the established stigma tends to be partial; while stigmatizers' arguments may prevail, the discursive strategies of the targets of stigma plant the seeds of continued contestation, dragging on the stigmatization process. This idea is in line with Wang et al. (2020), according to whom there may be a partial attribution of stigma that focuses on specific attributes of the target. In their case, the medical profession in China was partially stigmatized as the stigma was only attached to its ethical dimension. Other dimensions, such as the profession's competence or expertise, remained unquestioned. In contrast, our findings suggest that for partial industry stigmatization to occur, stigma needs to extend from a narrow focus on a few issues to a broad focus on the industry's products, clientele, and practices.

On the other hand, by elucidating the resistance mechanism, we complement and extend prior research on how the defensive strategies of the stigmatized delay or *slow* down stigmatization processes. This provides an important element to stigma research, which has traditionally focused more on the strategies of the stigmatizers than those of the targets. For instance, our results reveal that targets use downplaying strategies, which resonates with Siltaoja et al.'s (2020) findings about creating confusion as a strategy to dilute stigma. We also find that targets use strategies to question the credibility of stigmatizers, similar to Hampel and Tracey's (2017) isolating strategy, where targets highlight their respectability to attack the stigmatizers. Additionally, we identify championing strategies targets use to interpret events in their favor or showcase good citizenship. These strategies are similar to others aimed at information management (Zhang et al. 2020), such as covering (Rivera 2008), co-optation (Zhang et al. 2020), or exploiting (Shantz et al. 2019). Furthermore, our findings about distancing and insulating add to existing discussions about how stigmatized actors seek to stay away from others, for instance, by avoiding

public statements concerning a stigmatized attribute (Hudson and Okhuysen 2009, Sutton and Callahan 1987, Wolfe and Blithe 2015). Thus, by showing how the targets use a variety of discursive strategies, our analysis helps to develop a more comprehensive dynamic understanding of how resourceful incumbents may resist, impede, and slow down long-term stigmatization processes (Aranda and Simons 2018).

A Novel Methodological Approach

Capturing the dynamics of long-term stigmatization processes is challenging, particularly when dealing with media material comprising large datasets. By combining STM and a discursive analysis perspective, we lay out a methodological approach to identify and elaborate on how discursive struggles contributed to the extension of stigma in a structured manner, thus increasing our ability to derive theoretical insights from textual data by zooming in and out on specific issues of interest. STM offers a systematic method for uncovering industry stigmatization processes in large textual databases in a way that has been lacking in stigma research, offering excellent potential to serve as a basis for more in-depth and targeted research. The proponents of topic modeling have frequently concluded that this methodology is not in itself a solution but requires specific theoretical focus and supplementary analyses (Hannigan et al. 2019). This is precisely what a discursive analysis perspective can offer. Indeed, our research shows that beyond the insights gleaned from STM revealing important patterns, our discourse analysis provided a deeper understanding of the stigmatization process. Without such a discursive perspective, we would not have been able to determine *who* was talking, *why* specific topics ebb and flow at certain moments, or *which* discursive strategies are used by *whom*, all of which were crucial in uncovering the mechanisms behind long-term stigmatization processes. Hence, beyond overcoming their respective limitations, combining these methods offers an integrated mixed-methods approach to studying research questions that cannot be answered without their integration. This provides the “necessary intricacy and rigor to match the complexities of organizational phenomena” (Molina-Azorín 2007, p. 179).

All in all, we find that recent methodological advancements in text analysis greatly facilitate the study of stigmatization processes. While research in this area has been traditionally more qualitative (Pollock et al. 2019, Zhang et al. 2020), our innovative approach contributes important insights that are

difficult to obtain without the support of quantitative analysis. This is particularly relevant in today's environment, where stigma and vast amounts of textual data are ever-present across several controversial contexts.

Limitations and Future Research

We now focus on the limitations of our study and their implications for future research. Given our focus on an illustrative yet extreme case, such as the U.S. tobacco industry, our study does not offer a comprehensive theory of stigma extension. While our analysis provides a detailed account of what happened in this specific context, future research in other contexts may uncover broader, theoretically grounded, generalizable insights.

Although several data sources have been used to interpret our findings and make sense of a long-term industry stigmatization process, we have only included media data in the STM analyses. For our purposes, the media provided a clear arena for capturing how the dynamics of industry stigmatization processes unfold. Nevertheless, media data alone cannot uncover the intentions or motivations of the various actors involved in this process, nor can it delve into the actual social evaluation process of audiences. Thus, there is a need to expand our analysis to focus on these crucial aspects of stigmatization, which would involve the use of different types of media material (e.g. social media) as well as other contextual data.

Furthermore, there is a need to explore the media's role in more detail, which would not only add to research on industry stigmatization but to research on social evaluations more generally (Chang-Zunino and Grodal 2024, Sadri et al. 2023). Interestingly, the media attention patterns we uncovered exhibit distinct shapes (see Figures 3 to 5). The first phase has a normal bell-shaped curve, indicating a complete cycle where attention initially increased, then decreased, and was followed by a period of stability. In contrast, the second phase has a camel-shaped curve with two distinct peaks occurring consecutively. The third phase exhibits continuous growth in attention, suggesting that the discussion remains unsettled as the tobacco case has become a reference lens for interpreting related cases, like e-cigarettes. Future

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research could add to our understanding of how media attention shifts over time and uncover more specific patterns in media coverage of discussions that influence societal evaluations.

The temporality dimension of our findings also warrants future research. Empirically, we focused on the period between 1980 and 2016 in our analysis of the stigmatization of the tobacco industry. There are, however, reasons to argue that the process started much earlier, calling attention to what happened before the 1980s to develop a fuller picture of the first phases of stigmatization. Future studies exploring the very beginning of this process (i.e., focusing on the years around the Surgeon General's report in 1964) may provide significant insights into understanding why there was a lack of progress for a prolonged period. As suggested by Chang-Zunino and Grodal (2024), "the tobacco industry's use of doubt and misinformation effectively silenced the vocal minority advocating for a causal relationship between smoking and lung cancer. As a result, for a prolonged period a large part of the American population resisted updating their understandings of the risks associated with smoking". Moreover, there have also been exciting developments after 2016 related to e-cigarettes which may exhibit similar dynamics as the ones uncovered in this paper (Hsu and Grodal 2021). In general, as any such long-term processes are embedded in their particular socio-historical and institutional contexts, there is a need for future historical analyses in this and related contexts.

Similarly, future work could go deeper into the analysis of the discursive strategies of the key actors. While we have uncovered a set of strategies that the stigmatizers and the targets are likely to use, the findings may be, in part, case-specific and could be complemented by future research. Such analysis could be linked with existing research on discursive strategies in legitimation and other areas of social evaluations (Vaara et al. 2024). Moreover, future research could adopt a broader view by exploring the discursive and non-discursive strategies used by stigmatizers and targets in long-term stigmatization processes. This exploration could use different methods or empirical data to shed light on the tangible actions and the actual impacts of these strategies on social evaluations.

Despite its advantages, our exploratory mixed methods research design does not allow us to infer causality. Future work is needed to expand our knowledge of the conditions for the success of the

discursive strategies of a variety of actors. Nevertheless, we hope that the approach proposed in this paper, which increased the validation and generalizability of our results compared with purely qualitative methods, will be used in future work on social evaluations. Our methodology opens the door for research that focuses on specific judgments to explain the dynamics of industry stigmatization processes and to uncover whether and how those dynamics evolve, considering the various actors pushing for stigmatization, resisting stigma, or protecting the stigmatized. Moreover, as our method allows for the conceptualization of industry stigma as a dynamic and interactive process involving several actors and phases, it also overcomes prior accounts that focused on single actors as the sole drivers of these negative evaluations. We thus hope that the mixed-methods approach used in this paper can also serve as a fruitful methodology for future research.

Conclusion

Our study of the US tobacco industry suggests that stigmatization unfolds through repeated discursive struggles between stigmatizers and their targets, highlighting the significant role of the media in these processes. While prior studies (Devers et al. 2009, Pollock et al. 2019, Zhang et al. 2020) have touched upon this phenomenon or aspects of it, our model illustrates that the construction of collective disapproval of an industry through recursive discursive struggles spanning various issues over time. Our paper elucidates the key mechanisms driving this process – *attention*, *stigma construction*, and *resistance work* – and explains how their interplay extends stigma cumulatively over time, even if stigmatization remains partial and contested. While our specific findings are, to a large extent, case-specific, the overall pattern and these three mechanisms may also be found in other cases. We encourage others to explore and compare such dynamics in different settings. Additionally, the methods used in our analysis – combining STM and qualitative discourse analysis – may uncover and empirically validate patterns and process dynamics that have been difficult to capture with traditional methods in other settings. We thus hope our work will inspire future research in stigmatization and other related areas.

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TABLES

Table 1. Data Sources

Actor	Description	Source
Primary data	11,007 articles published in the top five U.S. newspapers: New York Times (or NYT), Washington Post (or WP), Wall Street Journal (or WSJ), Financial Times (or FT), USA Today.	LexisNexis
Supplementary material	<p><i>Tobacco industry’ documents:</i></p> <ul style="list-style-type: none"> i. Historical material and selected scientific studies. ii. Tobacco company annual reports, press releases, and blogs. iii. Internal tobacco company documents. iv. The Tobacco Atlas. <p><i>Several reports and factsheets on the industry from the following:</i></p> <ul style="list-style-type: none"> v. Surgeon General. vi. Tax Burden on Tobacco. vii. FDA archive - Center for Tobacco Products. viii. CDC Office on Smoking and Health. ix. National Cancer Institute ASSIST program. x. Smoke-Free, Be Tobacco Free, and Healthy People programs. xi. The WHO MPOWER on tobacco xii. The American Nonsmokers’ Rights Foundation. xiii. The Truth Initiative. xiv. The Campaign for Tobacco-Free Kids. xv. The State Legislated Actions on Tobacco Issues program - American Lung Association. xvi. The Robert Wood Johnson Foundation ImpacTeen program. xvii. The Public Health Law Center. xviii. Action for Smoking and Health. 	<p><i>Tobacco industry’ documents:</i></p> <ul style="list-style-type: none"> i. Academic journals https://tobaccocontrol.bmj.com/ and research centers such as https://tobacco.ucsf.edu/ ii. Companies’ websites. iii. Truth Tobacco Industry Documents Library (www.industrydocuments.ucsf.edu/tobacco/). iv. www.tobaccoatlas.org/ <p><i>Several reports and factsheets on the industry from the following:</i></p> <ul style="list-style-type: none"> v. www.hhs.gov/surgeongeneral/reports-and-publications/tobacco/index.html vi. healthdata.gov/dataset/tax-burden-tobacco-1970-2018 vii. www.fda.gov/tobacco-products viii. www.cdc.gov/tobacco/ ix. cancercontrol.cancer.gov/brp/tcrb/index.html x. smokefree.gov/, www.betobaccofree.hhs.gov/ and www.healthypeople.gov/2020/topics-objectives/topic/tobacco-use xi. www.who.int/health-topics/tobacco xii. www.no-smoke.org/ xiii. www.truthinitiative.org/ xiv. www.tobaccofreekids.org/ xv. www.lung.org/policy-advocacy/tobacco/slati/about-slati xvi. www.rwjf.org/en/library/collections/tobacco-control.html xvii. www.publichealthlawcenter.org/topics/commercial-tobacco-control xviii. www.ash.org/

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Table 2. Topics and Top Words⁷

Topic	Label	Top words
1	Menthol cigarettes and African Americans	black, menthol, white, cigarett, american
2	Punitive and compensatory damage awards for smokers	damag, case, award, class, compani
3	Youth smoking rates	percent, smoke, use, year, among
4	Tax-exempt cigarettes sold on tribal lands	tax, cigarett, state, indian, reserv
5	Dangers of second-hand smoke	smoke, health, cigarett, report, smoker
6	Youth cigarette sales at stores	store, sell, sale, custom, buy
7	Tobacco lobbying contributions	presid, clinton, republican, polit, democrat
8	Tar in cigarettes	cigarett, nicotin, tar, smoker, test
9	N/A	food, claim, water, patent, com
10	Tobacco stocks market value	percent, quarter, year, rose, billion
11	Cigars vs. cigarettes: How do they differ?	cigar, smoke, pipe, tobacco, roll
12	Senate tobacco Bill 1998	bill, legisl, vote, republican, senat
13	Tobacco divestitures and spin-offs	compani, million, will, corpor, inc
14	Smoking and personal health	heart, food, health, weight, exercis
15	Research on the health consequences of smoking	studi, research, found, effect, may
16	International anti-smoking efforts	tobacco, industri, health, public, anti
17	Tobacco taxes - state	tax, state, increas, year, budget
18	NYC smoking bans	citi, new, york, mayor, council
19	Tobacco sports sponsorship	virginia, race, event, sponsor, car
20	Nicotine dependence	compani, document, tobacco, industri, nicotin
21	Cigarettes and the media	new, agenc, presid, execut, name
22	Cigarette vending machine ban	law, state, ban, cigarett, restrict
23	Tobacco suits mid-1990s	lawyer, suit, lawsuit, state, case
24	Product placement in movies	film, movi, art, show, play
25	Smoking cessation	smoke, smoker, quit, cigarett, nicotin
26	Radon and cigarette smoking	fire, home, hous, air, level
27	Federal Tobacco Suit	court, rule, judg, case, decis
28	Tobacco editorials and opinions	peopl, can, say, make, will
29	Tobacco companies' influence on science, media and politicians	group, member, money, committe, lobbi
30	Tobacco farmers/growers and crops	tobacco, farmer, year, carolina, north
31	FDA authority over cigarettes	cigarett, product, tobacco, regul, use
32	Tobacco vs. marijuana	marijuana, california, state, voter, measur
33	Tobacco liability trial - Cipollone case	cigarett, smoke, case, compani, juri
34	Cigarette price increases	cigarett, market, brand, price, compani
35	Lung cancer and smoking	cancer, lung, women, death, diseas
36	Smoking bans on flights	smoke, flight, ban, polici, employ
37	Master Settlement Agreement	settlement, industri, state, tobacco, attorney
38	Smoking bans in the hospitality industry	smoke, ban, restaur, bar, smoker
39	Altria - Philip Morris	compani, tobacco, share, stock, analyst
40	N/A	day, one, street, town, peopl
41	Stories of smokers	say, one, like, time, day
42	Tobacco and guns	right, gun, public, social, power
43	International tobacco companies	countri, american, unit, world, state
44	Tobacco advertising campaigns	advertis, cigarett, smoke, campaign, camel
45	Fire hazards of smoking	polic, offic, year, charg, two
46	Smoking ban in schools and campuses	counti, school, maryland, will, student
47	Laws on packaging (images and warnings)	warn, label, packag, cigarett, requir
48	Hazards for children exposed to smoke	children, health, care, hospit, medic
49	Tobacco vs. alcohol	drug, alcohol, use, addict, abus
50	Athletes and smoking	game, player, play, team, year

⁷ Topics 9 and 40 contain words that do not reflect any particular meaning and are excluded from the analyses (Mimno et al. 2011, Puranam et al. 2017).

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Table 3. Data Structure

Phase	Topic number	Topic salience	Topic label	Common characteristics
Contested stigma extension by establishing harm (1980-1992)	5	4.15%	Dangers of second-hand smoke	Factual, informative, research based, conclusive
	36	3.57%	Smoking bans on flights	
	35	3.13%	Lung cancer and smoking	
	15	3.11%	Research on the health consequences of smoking	
	33	3.10%	Cipollone tobacco liability trial	
Contested stigma extension by assigning responsibility (1993- 2010)	17	4.14%	Tobacco taxes - state	Accusatory or denunciative, related to rules and regulations, structural, contested
	27	3.31%	Federal Tobacco Suit	
	16	3.26%	International anti-smoking efforts	
	37	2.98%	MSA	
	2	2.95%	Punitive and compensatory damage awards for smokers	
	38	2.90%	Smoking bans in hospitality industry	
Contested stigma extension by creating new norms (2011-2016)	31	7.75%	FDA authority over cigarettes	Report progress/success and effects on cigarette use, societal, far-reaching, progressive, international
	3	4.44%	Youth smoking rates	
	16	3.51%	International anti-smoking efforts	
	47	3.43%	Laws on packaging (images and warnings)	
	17	3.30%	Tobacco taxes - state	
	39	3.20%	Altria - Philip Morris	
	15	3.13%	Research on the health consequences of smoking	
	25	3.02%	Smoking cessation	
	24	2.68%	Product placement in movies	

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Table 4. Phase #1: Discursive Strategies.

Actor	Discursive strategies	Definition	Illustrative examples
Stigmatizers	Revealing	<p>Exposing scientific evidence or disclosing compromising documents</p> <p><i>Focus on disseminating scientific evidence</i></p>	<p>Dr. Elizabeth Anderson, director of the agency's Office of Health and Environmental Assessment, said of the Gibb assessment, <i>"It should be noted that even this risk, given the size of the population exposed to passive smoking, translates into a significant population risk in comparison to other environmental carcinogens"</i> (9188, NYT, 1984).</p> <p>"The Surgeon General of the United States, C. Everett Koop, said today that there was 'very solid' evidence that nonsmokers had suffered lung disease from exposure to cigarette smoke. Dr. Koop acknowledged that it was the strongest statement ever made by a high-ranking Federal health official on the phenomenon, which has been labeled 'passive smoking.' <i>'We try to be eminently fair and try not to overstate the case,' the Surgeon General said as he issued an annual report on smoking and health, but now 'the evidence is very solid.'</i>" (9133, NYT, 1984).</p> <p>Nonsmokers who live with smokers have a 20 percent to 30 percent higher risk of dying from heart disease than do other nonsmokers, a researcher said yesterday. <i>"Passive smoking causes heart disease, and the number of deaths due to heart disease is 10 times the number due to cancer,"</i> said the researcher, Stanton Glantz, a statistician at the University of California at San Francisco (8322, NYT, 1990).</p>
	Elaborating	<p>Explaining the need for change in terms of moral reasoning or justification</p> <p><i>Focus on moral reasoning</i></p>	<p>A Senator and former two-pack-a-day smoker noted that "[y]ou don't have to be the one holding the cigarette to suffer its toxic effects" (8483, NYT, 1989).</p> <p><i>"The predatory behavior and the degree of intensity to which these companies market their products of death and disease for the sake of profit is just immoral,"</i> Tuckson continued (3228, WP, 1990).</p>
Targets	Questioning	<p>Questioning the claims or the credibility of the stigmatizers</p> <p><i>Focus on claims</i></p>	<p><i>"It is reasonable to believe that stopping smoking does not reduce the risk of coronary heart disease and that there is no established proof that smoking is causally related,"</i> Dr. Carl C. Seltzer of Boston wrote in a rebuttal to the Surgeon General's 1979 report on smoking and heart disease, published today. (...) Dr. Castelli said in an interview that Dr. Seltzer was "being funded by the tobacco industry" (9432, NYT, 1980).</p> <p>William D. Toohey Jr., a spokesman for the institute, said his organization was studying the report. "The initial glance at it indicates it has a major problem in that it relies on data that have been seriously questioned," Mr. Toohey said. "It is totally unsupportable," the industry spokesman said. <i>"Even the Surgeon General has not made the assertion in his reports that cigarette smoke in the air causes disease to nonsmokers. I tend to think that this study is like a house of cards: when the underpinning is pulled out, the whole paper falls apart"</i> (9188, NYT, 1984).</p>
	Downplaying	<p>Minimizing overall risks and significance of specific issues</p>	<p><i>"The public seems very satisfied with the current segregation of smokers and nonsmokers, and there appears to be no need for a ban,"</i> said Brennan Moran, a spokeswoman for the Tobacco Institute (8766, NYT, 1986).</p> <p>Lawrence Garfinkel, vice president for epidemiology and statistics of the American Cancer Society, has commented, <i>"Passive smoking may be a political matter, but it is not a main issue in terms of health policy"</i></p>

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Actor	Discursive strategies	Definition	Illustrative examples
			(9122, NYT, 1984).

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Table 5. Phase #2: Discursive Strategies – First Peak.

Actor	Discursive strategies	Definition	Illustrative examples
Stigmatizers	Revealing	<p>Exposing scientific evidence or disclosing compromising documents</p> <p><i>Focus on disclosing compromising documents</i></p>	<p>Seven Congressmen asked the Justice Department today to begin a criminal investigation (which) said: "<i>We believe a criminal investigation is warranted by information contained in the industry's own internal documents revealed in recent weeks [which] offer compelling evidence that tobacco companies -- through their executives, their lawyers, their advertising agencies, their lobbyists, their public relations agents, their scientists and their trade association officials -- have committed a series of serious crimes over a period of several decades</i>" (7716, NYT, 1994).</p> <p>"[Dr. Kessler testified on Tuesday that <i>Brown & Williamson had spent years growing a genetic variety of tobacco that contains very high levels of nicotine and had used ammonia as a cigarette additive to increase the amount of nicotine delivered to smokers.</i> Dr. Kessler said the new information laid to rest any notion that there is no manipulation and control of nicotine undertaken in the tobacco industry." (7748, USA Today, 1994)</p> <p>"<i>Mr. Waxman, a Democrat, unveiled stacks of documents from Philip Morris, the world's largest tobacco company, on the House floor, contending that they illustrated unethical and possibly illegal research into nicotine.</i> Mr. Waxman said he had uncovered the documents in a Congressional investigation of the tobacco industry" (7391, NYT, 1995).</p>
	Defaming	<p>Vilifying actors for their moral transgressions</p>	<p>In the transcript, Jeffrey S. Wigand, who led the company's research from 1989 to 1993, offered specifics about his contentions that "<i>the company and senior executives had engaged in a variety of abuses, including perjury, destruction of evidence, quashing research into safer cigarettes, reckless use of possibly harmful additives and violations of export controls</i>" (7097, NYT, 1996).</p> <p>"<i>His own efforts to create a safer cigarette were thwarted by the company to the extent of having a company lawyer deliberately changing the minutes of a meeting because the real minutes would make it clear the company knew its products were not safe. Mr. Wigand also said that he and his family have gotten death threats and that he has begun to carry a gun</i>" (7101, NYT, 1996).</p> <p>"Each year the tobacco companies have to replace two million American smokers. A million and a half kick the habit annually. Another half-million or so are bulldozed into early graves because they couldn't quit. (...) The tobacco execs know exactly where the replacement smokers are. They are wherever children gather – in the classrooms and the playgrounds, the candy stores and the toy stores all over America. (...) <i>And just as surely as smoking causes cancer, the tobacco companies are directing an enormous amount of their advertising toward children</i>" (7048, NYT, 1996).</p> <p>"Joe Camel was emblematic of what they maintained were the <i>insidious, underhanded marketing gimmicks by which cigarettes are sold in America</i>" (6652, NYT, 1997).</p> <p>In 1998 a memo described how Reynolds' "<i>lawyers suppressed research on the health hazards of smoking has been removed from a congressional site on the World Wide Web after Reynolds officials complained that it should not have been made public</i>" (2005, WP, 1998). And even when courts ordered them to reveal internal company documents, they were slow to make them available.</p>

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Actor	Discursive strategies	Definition	Illustrative examples
Targets	Questioning	Questioning the credibility and claims of the stigmatizers <i>Focus on credibility</i>	But documents unearthed by <i>Brown & Williamson</i> lawyers portrayed Mr. Wigand harshly, accusing him of shoplifting and abuse of his wife and depicting him as a problem employee who was dismissed from his job for abusive behavior toward co-workers and misrepresenting his work (7104, NYT, 1996). Tobacco companies dismissed the ruling as procedural and said the decision left open the <i>issue of whether the governor or attorney general has the right to file such a suit</i> (2194, WP, 1997).
	Insulating	Buffering attacks by denying accusations and delaying cooperation	<i>The company has subpoenaed Waxman, Rep. Ron Wyden (D-Ore.) and several journalists to review the documents, which the company said were stolen from its law firm</i> (2865, WP, 1994). It is not known how long before then any of the evidence -- thousands of documents and depositions -- may become available. <i>The companies had fought a prolonged battle to keep the papers confidential until their admission at trial. If "taken out of context and left unexplained," some of the materials could open the companies to "embarrassment, oppression and apparent incrimination,"</i> they argued in the 3rd Circuit (3734, WP, 1997).

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Table 6. Phase #2: Discursive Strategies – Second Peak.

Actor	Discursive strategies	Definition	Illustrative examples
Stigmatizers	Elaborating	<p>Explaining the need for change in terms of moral reasoning or justification</p> <p><i>Focus on justification</i></p>	<p>Bloomberg, a former smoker, said protecting employees from the dangers of secondhand smoke is paramount. <i>"Because of this legislation, it's literally true that something like 1,000 people will not die each year who would have otherwise died from secondhand smoking."</i> Bloomberg said (1224, WP, 2002).</p> <p><i>"I think the fact that the governor will support a smoking ban shows not only the change that's taking place in Robertson County, but the change that's taking place in the state as a whole,"</i> he said. <i>"Politically it would have been suicide, until fairly recently."</i> Mr. Bredesen said he proposed the ban because he felt the time was right. The harmful effects of smoking are well documented, he said, and tobacco's declining clout in the state has now made it possible. <i>"It's something you couldn't have done in Tennessee a decade ago,"</i> Mr. Bredesen said. <i>"I think people are ready for it. Everything is not seen through the prism of being a tobacco state"</i> (5073, NYT, 2007).</p>
	Narrating	<p>Sharing narratives to promote change</p>	<p>Among 330 replies, just 17 farmers said they will turn down the money. A handful are interested in a transitional buyout that would let them reduce production slowly. <i>But the rest "are realizing that the tobacco markets are going to hell and they ought to go ahead while the money's there and get the hell out,"</i> said Middleton, who grows tobacco himself (1421, WP, 2000).</p> <p><i>"I don't think they ever thought the whole state was going to go smoke-free and they would continue to have this exemption,"</i> he said. <i>"You've got a national movement now."</i> Supporters of the ban say restaurants and bars in other cities have not just survived the restrictions but thrived (5176, NYT, 2006).</p>
Targets	Questioning	<p>Questioning the credibility and claims of the stigmatizers</p> <p><i>Focus on claims</i></p>	<p><i>"It's the businesses that are vulnerable."</i> The debate pits profits against public health, and it has been unfolding across the country as more and more towns and counties outlaw smoking in public places. Many restaurant workers are opposed to a ban designed to protect them because they say smokers spend more, tip better and are generally more patient than their nonsmoking customers (1555, WP, 1999).</p>
	Championing	<p>Claiming exoneration and highlighting good citizenship</p>	<p>In fact, Advance cigarettes come with a warning that begins, "There is NO such thing as a safe cigarette," and ends with: "It is much safer for you to QUIT than to switch or smoke." <i>"We're trying to be very, very careful and as responsible as possible,"</i> said Paul L. Perito, chairman of the company, based in suburban Chester (1462, WP, 2000).</p> <p><i>"Philip Morris has been softening its previously combative stance toward government tobacco policies, calling for some regulation by the Food and Drug Administration and saying it could support 'sensible' rules as part of an international tobacco-control treaty. (...)"</i> (9615, WSJ, 2000).</p> <p><i>"Tobacco companies applauded the West Virginia verdict. "This is a very important victory for the industry,"</i> said Thomas McKim, assistant general counsel at R.J. Reynolds Tobacco Co., one of the defendants. <i>"It tells us that tobacco companies aren't going to be held liable for the inherent risks of smoking"</i> (9529, WSJ, 2001).</p>

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Table 7. Phase #3: Discursive Strategies.

Actor	Discursive strategies	Definition	Illustrative examples
Stigmatizers	Exemplifying	Demonstrating the success of measures and actions	<p>"Virginia has shown remarkable progress over the past two years in its efforts to keep kids from smoking, and these new results provide additional evidence that tobacco prevention is a good investment for states," said William V. Corr, executive director of the Campaign for Tobacco-Free Kids (600, WP, 2008).</p> <p>"Dr. Lawrence R. Deyton, director of the F.D.A.'s Center for Tobacco Products said the government estimates, based on other countries' experience, that the new warning labels will prompt an additional 213,000 Americans to quit smoking in 2013, the first full year with the graphic labels. 'We are pleased with the images they picked,' said Nancy Brown, chief executive of the American Heart Association. 'They strongly depict the adverse consequences of smoking. They will get people's attention. And they will certainly be much more memorable than the current warning labels.'" (4714, NYT, 2011).</p> <p>"The CDC [Centers for Disease Control] should really be jumping for joy at the fact that smoking rates are declining. This is a huge success" (115, WP, 2015).</p>
	Cautioning	Pointing to warning signs and calling for vigilance	<p>"More progress must be made to ensure youngsters at these critical age levels continue to turn away from smoking. (...) The lack of greater progress in recent years is a clear warning to elected officials to resist complacency and redouble efforts to reduce tobacco use. We know how to win the fight against tobacco use, but we will not win it – and our progress could even reverse – without the political leadership to implement proven solutions,' Matthew L. Myers of the Campaign for Tobacco-Free Kids, a Washington advocacy group, said in a statement" (584, WP, 2008).</p> <p>"Overall funding on tobacco control is down because of dramatic cuts in state spending in recent years," Matthew L. Myers, president of the Campaign for Tobacco-Free Kids, said in an interview. (...) While the federal government has made up for some of the state decline in antitobacco funding, it is spending even more on antiobesity efforts. (...) Stanton A. Glantz, director of the Center for Tobacco Control Research and Education at the University of California, San Francisco, asked, "Given that tobacco kills four times as many people as obesity does, why is the government putting more money into obesity?" (4817, NYT, 2010).</p>
Targets	Distancing	Distancing oneself from an issue by refusing to comment or remaining silent	<p>The industry <i>avoided directly answering the most charged questions</i>, including one from Patricia Nez Henderson, the panel's public representative, about whether menthol masks the harmful effects of smoking. "We were here to talk about the scientific information," said James Dillard, a senior vice president at Altria (...). "We're not in the best position today to talk about that." (10132, WSJ, 2010).</p> <p>"The Altria Group, the largest tobacco company in the United States, said it would not comment". (4714, NYT, 2011).</p>
	Challenging	Resisting restrictions and norms selectively	<p>The industry filed a lawsuit in federal court challenging laws on packaging when the government "unveiled plans to replace the warnings cigarette packs began carrying 25 years ago with new versions using images that could include emaciated cancer patients, diseased organs and corpses" (464, WP, 2010). Eventually, the industry won in court and successfully managed to deter the display of graphic images.</p>

Explaining the Gradual Stigmatization of the U.S. Tobacco Industry

FIGURES

Figure 1. Timeline of Key Events

- **1980:** First WHO Day “Smoking or health - the choice is yours.”
Surgeon General's causal reports on smoking and women’s health
- **1981:** C. Everett Koop appointed as Surgeon General
- **1982:** Surgeon General's causal reports on smoking and cancer
- **1983:** Surgeon General's causal reports on smoking and heart disease
- **1984:** Strengthened warnings on cigarette packages
Surgeon General's causal reports on smoking and lung disease
- **1986:** Surgeon General's report on involuntary smoking
- **1987:** RJ Reynolds debuts Joe Camel in its US advertisements
- **1988:** Surgeon General's report on nicotine addiction
Smoking is banned on short domestic flights
- **1990:** Smoking is banned on all domestic flights
- **1992:** Synar Amendment enacted by congress
Cipollone V. Liggett Group Inc. case

**Phase #1: Contested stigma extension by establishing harm
(1980 – 1992)**

- **1994:** Mississippi becomes the first state to commence litigation against the tobacco industry
Tobacco executives testify before Congress that nicotine is not addictive
- **1995:** FDA oversight over cigarettes as a "drug delivery device"
- **1996:** More than 40 states have commenced litigation against the tobacco industry
- **1997:** Mississippi, Florida, Texas, and Minnesota settled with the industry
- **1998:** Tobacco executives testify before Congress that nicotine is addictive, and that smoking may cause cancer
Surgeon General's report on tobacco use among US racial and ethnic minorities
Master Settlement Agreement (MSA) reached between 46 states and the four largest tobacco companies

**Phase #2: Contested stigma extension by assigning responsibility
(1993 – 2010)**

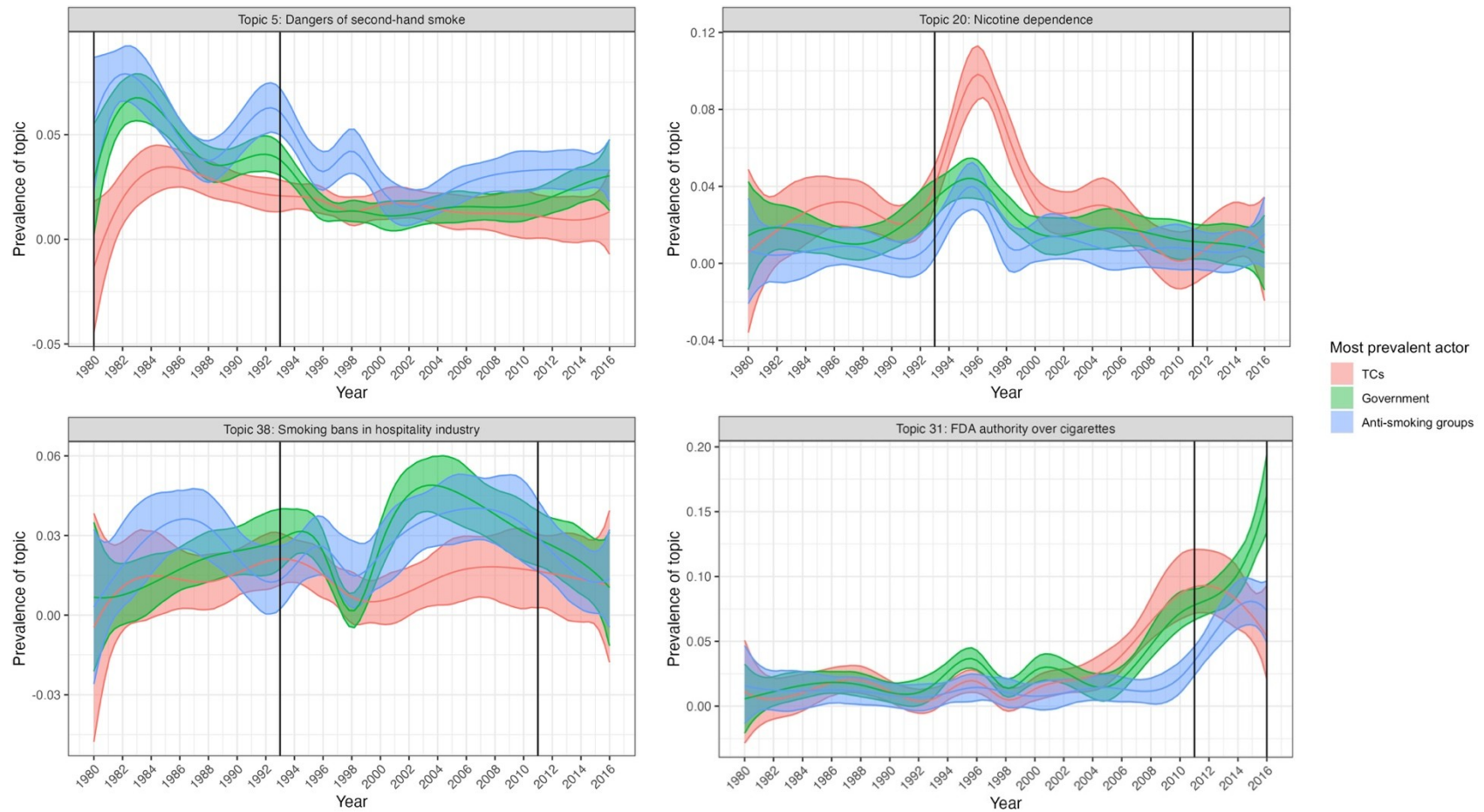
- **2010:** FDA restrictions on youth access and marketing of tobacco products take effect
- **2011:** FDA Food Drug and Cosmetics Act
- **2012:** First World Vaping Day
- **2013:** First E-Cigarette Summit to present research on electronic cigarettes
- **2014:** Surgeon General report on Smoking and Health, 50th Anniversary 1964 report
- **2016:** FDA warning letters for sales to minors of e-cigarettes
FDA gets oversight over all tobacco products, including e-cigarettes

**Phase #3: Contested stigma extension by creating new norms
(2011 – 2016)**

- **2000:** Supreme Court rules that the FDA does not have authority to regulate tobacco
Smoking is banned on all international flights
- **2002:** Delaware becomes the first state to pass a comprehensive smoking ban
- **2004:** Framework Convention on Tobacco Control Treaty signed by the U.S.
- **2006:** Surgeon General report settles the debate on involuntary smoking
- **2009:** Half of all U.S. states enact comprehensive smoking bans
Regulatory authority over tobacco products granted to the FDA

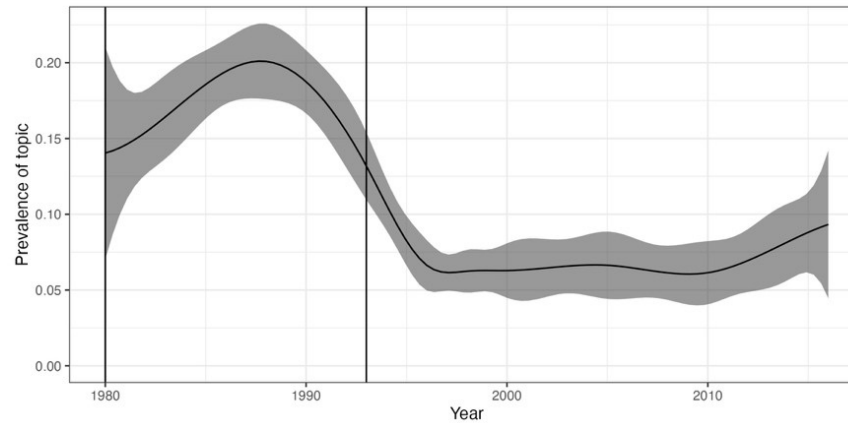
Explaining the Gradual Stigmatization of the U.S. Tobacco Industry

Figure 2. Topic Dynamics⁸



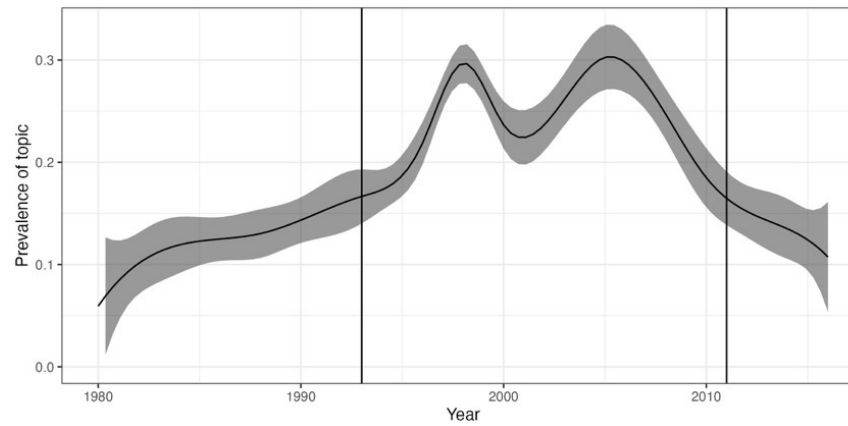
⁸ The graphs present the evolution of selected topics. All remaining graphs are available from the authors upon request. Topic prevalence represents the average expected frequency of the topic in the respective period. With 50 topics, the mean prevalence is 2 percent (1/50th). Vertical lines indicate the start and end of the periods identified in our study, where the topic is most relevant. The data for the figures were retrieved using the estimated effects function of STM.

Figure 3. Phase #1: Establishing Harm via Contested Scientific Evidence (1980-1992)⁹



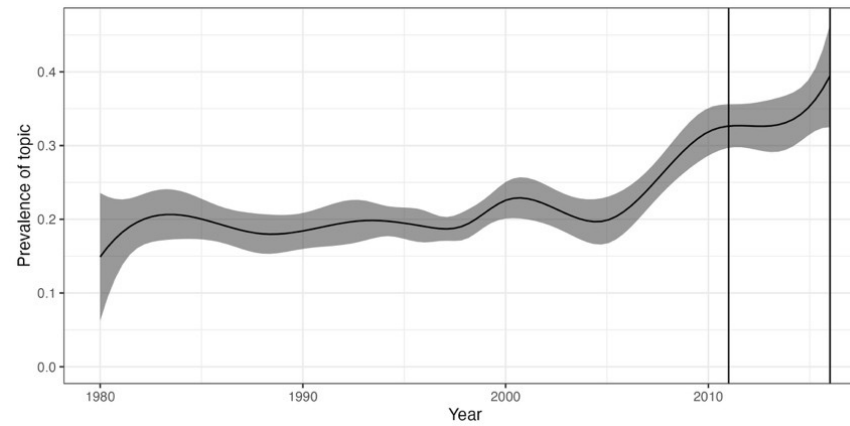
⁹ The graph displays the combined prevalence of a set of topics based on the Data Structure, as displayed in Table 3. The prevalence for a group of topics at a particular point in time is the sum of the individual topics at that point in time. Examples of individual topic prevalence are shown in Figure 2. We calculate a 95% confidence interval for the group of topics listed in Table 3 based on the variances of the individual topics using the Delta-method, where we assume the covariances to be zero and the standard error of the group of topics to be equal to the square root of the sum of the variances of the individual topics.

Figure 4. Phase #2: Assigning Responsibility via Contested Judicial and Regulative Action¹⁰



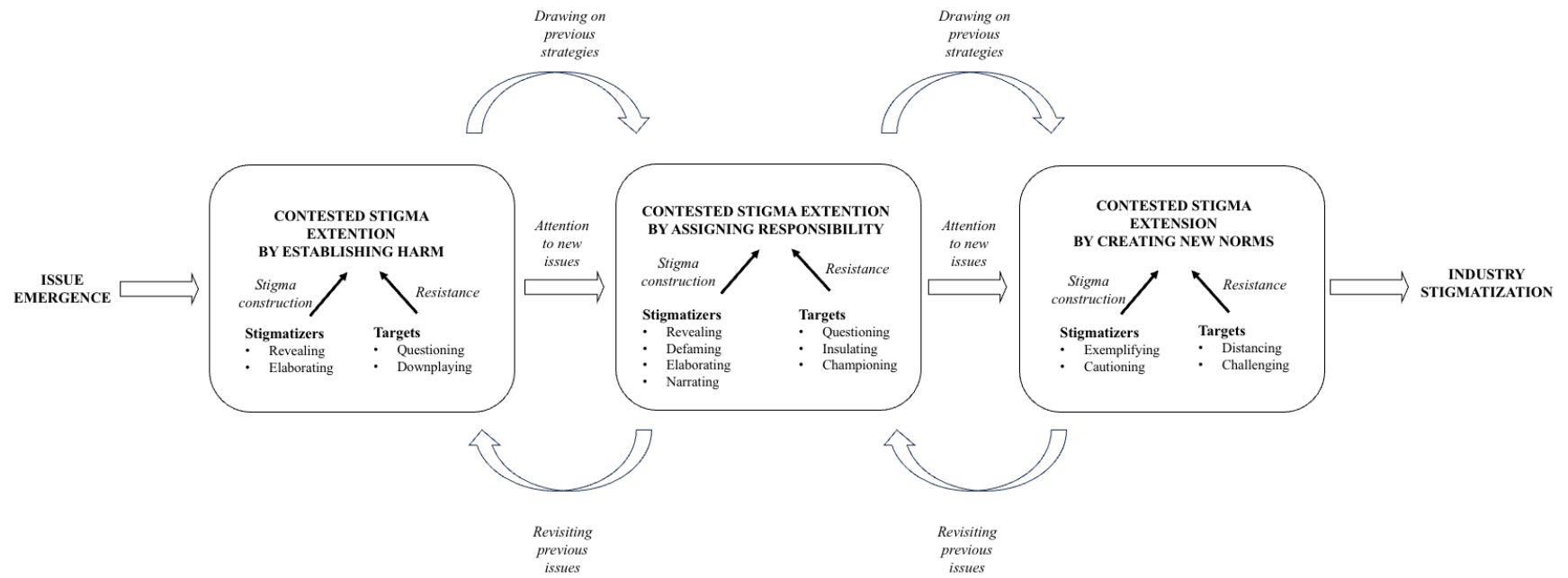
¹⁰ The graph displays the combined prevalence of a set of topics based on the Data Structure, as displayed in Table 3. The prevalence for a group of topics at a particular point in time is the sum of the individual topics at that point in time. Examples of individual topic prevalence are shown in Figure 2. We calculate a 95% confidence interval for the group of topics listed in Table 3 based on the variances of the individual topics using the Delta-method, where we assume the covariances to be zero and the standard error of the group of topics to be equal to the square root of the sum of the variances of the individual topics.

Figure 5. Phase #3: Creating A New Contested Normative Environment¹¹



¹¹ The graph displays the combined prevalence of a set of topics based on the Data Structure, as displayed in Table 3. The prevalence for a group of topics at a particular point in time is the sum of the individual topics at that point in time. Examples of individual topic prevalence are shown in Figure 2. We calculate a 95% confidence interval for the group of topics listed in Table 3 based on the variances of the individual topics using the Delta-method, where we assume the covariances to be zero and the standard error of the group of topics to be equal to the square root of the sum of the variances of the individual topics.

Figure 6. A Discursive Model of Stigma Extensions in Industry Stigmatization



APPENDICES

Appendix 1: Metadata.

Our STM approach enables flexible linking of meta-data to the prevalence of topics. In specific, we use two factors: time and actors. While LexisNexis allows rather straightforward extraction of the article's publication date, the actor data require a more elaborate approach. Specifically, we used OpenNLP, a Named-Entity-Recognition tool, to extract information on both people and organizations in the corpora. After identifying the actors (which could be either people or organizations) with the NLP procedure, we obtained a comprehensive list of 7118 organizations and 11980 persons mentioned in the articles. The following table lists the first ten entries for each file:

Table A1: Top 10 Organizations and People

I D	Organization	Freq	Person	Freq
1	Philip Morris	2466	Clinton	907
2	Congress	1706	Reynolds	664
3	Senate	1078	Philip Morris	311
4	Food and Drug Administration	660	Reynolds Tobacco Company	271
5	House	551	Joe Camel	266
6	Tobacco	527	Bush	198
7	White House	526	Kessler	134
8	Supreme Court	506	J. Reynolds	126
9	Tobacco Institute	462	Reagan	122
10	Justice Department	379	Pataki	96

The frequency column details how many times the actor is mentioned in the corpora. We coded each entry of the list with organization and person actors until theoretical saturation occurred, i.e. until we no longer found new relevant actors or until the frequency reached 1, resulting in 2278 organizations and 402 people coded to capture the most relevant actors (2680 in total). We note that although the algorithm is not entirely reliable in distinguishing between people and organizations (e.g., those named after people), this was irrelevant in our case as we combined organizations and persons into a single list of actors. We then manually coded each of the listed actors in the following disaggregated categories:

- international
- national
- federal
- state
- individual
- tobacco company
- political party
- executive government
- legislative
- president
- mayor/governor
- surgeon general
- health organization
- non-profit
- society
- smoker
- industry group
- lawyer
- agency
- media
- academia
- military
- financial market
- other corporation
- indian
- others

These categories were then grouped into three broad actor groups: the Tobacco Industry and its allies, Government, or Anti-Smoking groups (Nathanson 1999). Hence, the coding was done on the most disaggregated level possible: coding each actor into one of the three groups of actors previously identified, interrelating them to uncover their underlying relationships, and validation the coding through discussion (Strauss and Corbin 1998). We then validated the actors extracted by NLP with a manually created list of relevant actors in the tobacco debates obtained with an extensive reading of the

supplementary material. After cross-validation both lists of actors, we are confident that the NLP algorithm correctly identifies the important actors in these debates.

The next step entailed assigning actor linkages to the articles, which was achieved by identifying the dominant actor group for each article. In addition to the date information on the article, this information was subsequently added to our STM, which provides the actor-topic linkages. Thus, using the data and the extraction methods discussed above, we specified our STM model to include the date variable and the dominant actor group for each article. Finally, to prevent creating a feedback loop, we pre-processed the text to eliminate any of the named entities found by the NER algorithm.¹²

To assess the robustness of our findings to include information on the actor groups in our covariates, we ran two robustness checks, which we detail in Appendix 3 (part: What if we would have categorized actors into different groups?)

¹² Our robustness check estimated the STM without eliminating the actors in the text. We found that all topics substantively replicate (we find a correlation of .90 when comparing both solutions). Omitting the actor information from the text itself did not lead to substantive changes in either the topics or our subsequent analysis. Thus, we concluded that excluding the actors does not result in substantive changes in our STM output, as the differences were rather inconsequential.

Appendix 2: Deciding on the Appropriate Number of Topics

The purpose of applying STM was to identify the lens through which one sees the data most clearly rather than to estimate population parameter correctly. As our interest was in identify themes and assistance in further qualitative interpretation, “there is no statistical test for the optimal number of topics or for the quality of a solution” (DiMaggio et al. 2013, p. 582).¹³ Hence, keeping in mind that a qualitative assessment is a crucial step – which others have called “rendering” (Hannigan et al. 2019) – we elaborated on the statistical indicators that can be relied on in determining the correct number of topics. As described in the main text, an independent qualitative assessment by two authors yielded an acceptable range of solutions between 40 and 60 topics. Solutions below 40 lack the necessary detail for our subsequent analysis, whereas solutions above 60 induce additional analytic complexity without adding substantive insights. Next, we turned to the quantitative indicators, which we discuss below.

Quantitatively, several statistics aid in selecting the right number of topics. We used two statistics based on the argument of Roberts et al. (2014) that topics are semantically interpretable when they have two qualities: (1) cohesiveness: high-probability words in the topic tend to co-occur within documents and (2) exclusiveness: top words in one topic are unlikely to be top words in other topics. Hence, we followed prior research (Schmiedel et al. 2018) and focus on “semantic coherence” and “exclusivity.”¹⁴ First, the semantic coherence reports the degree to which the top words in each topic co-occur so that the higher the semantic coherence of a topic, the higher the degree to which the topic’s most frequent words belong primarily to a single topic (Mimno et al. 2011). Roberts et al. (2014) find that it is “relatively easy” to improve this fit criterion by focusing solely on a handful of topics – as also evidenced in our figure. The second criterion, exclusivity, represents the degree to which words are linked exclusively to a particular topic (as opposed to a set of topics).

We initially generated these statistics for a large number of solutions (see Figure A2). A solution containing topics that are both semantically cohesive and exclusive proved semantically useful. Given the negative correlation between these two criteria, researchers are bound to a trade-off between these two. In line with Kuhn (2018), we aim to identify solutions that outperform neighboring solutions (i.e. if one drew an imaginary line through the middle of all solutions, the solutions that outperformed others would deviate towards the upper-right corner). First, we noted that the qualitative assessment suggested that we focus on a range of 40 to 60 topics, which was further supported by the quantitative measures, as the exclusivity measure scarcely improved beyond 60 topics. In contrast, semantic coherence deteriorated as we increased the number of topics. We observed a significant drop in exclusivity for solutions with fewer than 40 topics, pointing towards discussion of multiple related issues in articles linked to a single topic. Second, within the range of previously identified theoretically rich yet not overly complex solutions, there was no obvious winner (i.e. in the grey area, no solution clearly outperforms on either criterion).

To settle on a final solution, we again independently analyzed each solution in the grey range (40 – 60). Specifically, we re-examined the “top terms” (the most frequently used words) in each selected solution and reread the top representative articles for each topic in each key. Based on qualitative analyses suggesting theoretical saturation, we opted for 50 topics. Qualitative analyses of solutions with more topics (e.g. 60) did not yield any previously undetected meaningful and relevant topics. In contrast, fewer topics (e.g. 40) left out important nuances, strengthening our belief that 50 topics best suit our setting.

¹³ Moreover, statistical tests may even be misleading, as models “often shunt noisy data into uninterpretable topics in ways that strengthen the coherence of topics that remain” (DiMaggio et al. 2013, p.582). If the goal is to obtain meaningfully interpretable topics for further analysis, such statistics will yield misguided outcomes.

¹⁴ We note that there are others, such as “Held-out likelihood,” “Residuals,” and “Lower Bound,” which are widely seen to be inferior to the semantic coherence and exclusivity measures (Roberts et al. 2014).

What if we had selected 40 or 60 rather than 50 topics?

To analyze the consequences of selecting the wrong topic model solution, we contrasted the extremes in the above range to the chosen solution. We took two steps: (i) identification of the differences between these solutions and (ii) identification of the downstream results of these differences.

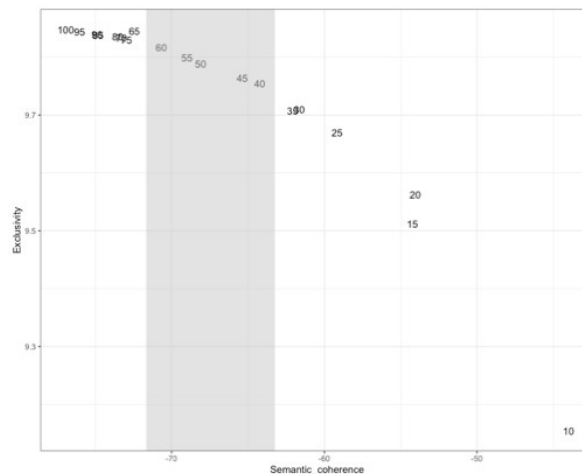
40 vs. 50 topics. We found that when going from a 40-topic solution to a 50-topic solution, 8 topics split into 2 subtopics each (i.e. representing 16 topics), and two new topics arose, with articles scattered across several topics in the 40-topic solution. A concrete example of a topic that was split and became two relevant topics is topic #33 in the 40-topic solution (“Laws on packaging & Tobacco liability trial”), which became topics #33 and #47 (“Tobacco liability trial - Cipollone case” and “Laws on packaging (images and warnings)”) in the 50-topic solution. One of the new topics contained articles not well represented by the 40-topic solution containing information on relevant tobacco control regulations (e.g., #46, “Smoking ban in schools and campuses”).

50 vs. 60 topics. Going from a 50-topic to a 60-topic solution, we found that while we obtained a more fine-grained list of issues, there was conceptual redundancy (e.g., #29 in the 50-topic solution “Tobacco companies’ influence on science, media, and politicians” became two topics, #29 “Tobacco companies’ influence on science and media” and #60 “Tobacco companies’ influence on state lawmakers”). A new topic in the 60-topic solution, out of articles previously scattered across a few topics, is #59, “Reports on smoking.” While interesting in its own right, our analysis already captures the several reports published on smoking in several other topics in the 50-topic solution.

Robustness of Paper Findings

Next to the comparison of solutions, we also examined whether the conceptually similar topics between the 40, 50, and 60 solutions were characterized by the same dynamics over time and would lead to different inferences. Qualitatively, we find that the representative articles for each conceptually replicated topic are very similar (a statistical check that shows that these correlations are, on average, .90). We use the analog of Figure 1 for each alternative solution and contrast these between the different solutions. We find that the dynamics over time are substantively similar.

Figure A2: Exclusivity vs. Semantic Coherence



Appendix 3: Deciding on the Appropriate Number of Actors

One feature of our STM is the possible inclusion of meta-data. In our specific application, we relate actors groups into topics in the way described in Appendix 1. In short, Appendix 1 details how we identify these actors using a Named-Entity-Recognition tool and an overview of the frequencies in which they appear in the texts. These actors were then grouped to form three broad actor groups: the Tobacco Industry and its allies, Government, or Anti-Smoking groups, a choice driven by prior work (Nathanson 1999).

What if we had categorized actors into different groups?

To assess the robustness of our grouping approach, we estimated additional STMs using the same sample as discussed in the manuscript. First, we estimated a model that does not include actor groups to see whether this influenced the topics we obtained. Second, we estimated a model with two (rather than three) actor groups. Our findings show that (1) the topics obtained in our focal model are virtually identical between all solutions and (2) the level of aggregation influences efficiencies introduced by the STM and the ease of identifying patterns. From a researcher's perspective, we contend that theoretical considerations drive the grouping level. Too few actor groups result in lumping trends across actor groups together, requiring further in-depth inspection to disentangle why topics surge or abate. At the same time, too many actors may result in a lack of oversight and a lack of statistical power (to ascertain confidence intervals) for each group (see Roberts et al. 2014 on "Power Calculations"). We detail the results of the two robustness checks below.

An STM without actor groups. In this robustness check we estimated a model that only includes newspaper dummies and time as covariates but omits which actor group is most prevalent. The rationale is that we can assess whether we influenced the topic solutions obtained. From a theoretical perspective, we expected few changes. As discussed by Roberts et al. (2014), the main advantage of STM over traditional LDA is the better statistical inference of how a covariate relates to a topic (i.e. as opposed to LDA, STM incorporates the covariates and produces more crisp assignments and suffers less from local modes in posterior distributions). Indeed, as exemplified by Figure 3 in Roberts et al. 2014, using covariates within STM results in less variance than an approach in which an LDA precedes the STM. In the accompanying Appendix of Roberts et al. (2014, section 1.2.7), a discussion of the differences between LDA and STM shows that not including covariates does not lead to substantively different solutions in terms of the content of the topic but does enhance the exclusivity. We contend that their findings to generalize to our setting.

Results. To calculate the changes in topic content, we compared the 50-topic solutions for the versions with (main analysis) and without (robustness check 1- RC1) the actor groups included as a covariate. First, we calculated which topic was deemed most similar based on the overlap in top words (for "prob", "score", "frex", and "lift"). We find that each topic in RC1 uniquely corresponds to a topic in our main analysis (and vice versa). This confirms that the same topics are retrieved independently of the inclusion of the actor groups as a covariate. To understand whether there are more subtle differences within these topics, we compare the top words (as shown in Table 2). For 45 of 50 topics, the top words were identical between RC1 and the main analysis. For 5 topics, we found slight cosmetic differences similar to Roberts et al. (2014).

Table A3: Comparison of Top Words

Topic	1	2	3	4	5
# 9 (main analysis)	food	claim	water	patent	com
# 9 (RC1)	food	claim	water	com	patent
# 19 (main analysis)	virginia	race	event	sponsor	car
# 19 (RC1)	virginia	race	event	sponsor	sport
# 21 (main analysis)	new	agenc	presid	execut	name
# 21 (RC1)	new	agenc	execut	presid	name
# 28 (main analysis)	peopl	can	say	make	will
# 28 (RC1)	peopl	can	say	will	make
# 34 (main analysis)	cigarett	market	brand	price	compani
# 34 (RC1)	cigarett	market	price	brand	compani

We grey out words in the same position across the two analyses. We conclude that ignoring the actor groups (vs. including them) results in substantively virtually similar outcomes.

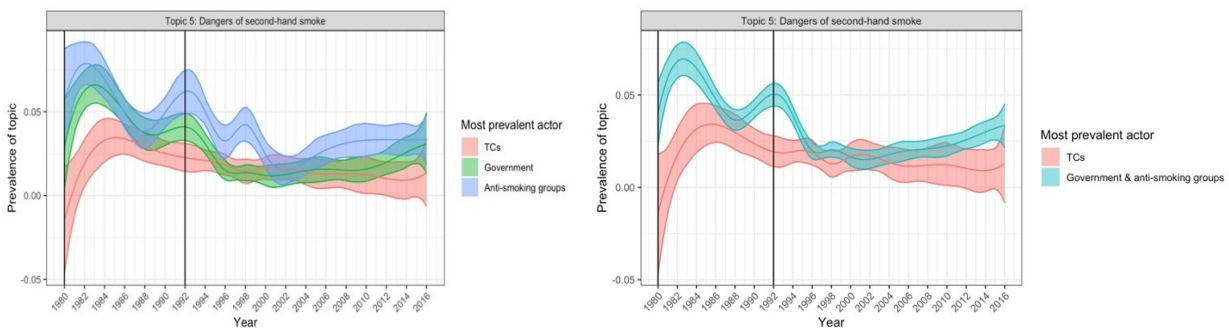
The level of grouping of actors within STM. Our rationale for three actor groups was based on the literature (Nathanson 1999). It is interesting to understand whether this grouping affected the topics found and/or the conclusions drawn regarding the actor groups and the prevalence of individual topics. Within this robustness check (RC2) we answered two questions: (1) were the same topics covered, and (2) were the subsequent (potential) inferences different when groupings differed in the level of granularity? We used a grouping with two (rather than three) actor groups to answer these two questions: Tobacco Companies vs. Government & Anti-smoking Groups. That is, vis-à-vis our main analysis, we grouped the latter two actor groups in a single actor group.¹⁵ We then estimated an STM where we considered only two actors in RC2.

Effects on Topics. To understand whether an STM with a different level of groupings resulted in different topics, we again calculated whether each topic in RC2 uniquely corresponded to a topic in the main analysis. We found results similar to our previous analysis, with the same topics appearing in both solutions. We again verified that the keywords and their order are the same for 46 out of 50 topics, with cosmetic differences for the other 4.

Effects on inferences on relationship between topics and actor groups. To understand how groupings influenced downstream results, we examined differences between how actor groups were related to the prevalence of the topics in our main analysis and RC2. To illustrate, we recreated Figure 1 from the main study for Topic 5, which is on the Dangers of second-hand smoke (see Figure A3).

¹⁵ Note that it is possible to create two broad groups of actors for estimation purposes. Still, neither from a theoretical nor an empirical perspective is it desirable to do so. Theoretically, the role of sanctioners is fundamentally different from that of social movements. Empirically, given the long time-span of our analysis, it is not possible to assert that all state governments at all times supported the goals of the anti-smoking groups.

Figure A3: Comparing Topic 5



The results suggested three main conclusions. First, the inferences for the prevalence of the topic for tobacco companies were nearly identical across the main analysis and RC2. Second, for the Government and Anti-Smoking groups, we saw the individual patterns in our main analysis, whereas we observed the averaged pattern in our RC2. While this aggregate pattern may have made sense, we lost a level of detail that may be relevant for the researcher (e.g., around 1998-2000, Anti-smoking groups were linked to Topic 5, whereas the Government was not). Third, we observed wider confidence intervals in our main analysis vis-à-vis RC2. While we retained sufficient statistical power in our three-actor analysis, the implication was that as we went to a more granular level, our inferences would be hampered more by wider confidence intervals (i.e. we would be less able to statistically conclude that a particular actor was more/less associated with a specific topic than another actor).

Summarizing our findings, we observed that the level at which actors were grouped did not influence the topics but might aid or hamper downstream inference-making, where more coarse groupings led to more easily digestible information and statistical power. More granular groupings may result in more refined patterns per group at the risk of losing statistical power. We believe these patterns extend to any solution that includes more actor groups. As such, we suggest that researchers primarily select the detail in their covariates to be a function of theoretical considerations, while keeping in mind that they will influence the ease of interpretation of the results and the statistical power.