Quantifying Deregulation and its Economic Effects: A Large Language Model Approach*

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Abstract

We construct a news-based index of deregulation for the United States from 1960 through 2025 using AI to semantically classify newspaper articles. We distinguish articles discussing deregulation from those discussing increased regulation, assigning intensity scores that reflect both the centrality of deregulatory content and whether articles discuss advocacy, proposals, or enacted measures. Human validation confirms strong agreement between AI and human classifications. The deregulation index captures major reform episodes including transportation and telecommunications liberalization in the 1970s–1980s, financial deregulation in the 1980s–1990s, and recent deregulatory activity. We decompose the index by sector, type of deregulation, and policy stage. We validate the news-based index against a parallel index constructed using Federal Register documents: the news-based index leads the Federal Register index by nearly one year, consistent with media coverage reflecting policy intentions before formal implementation. Unlike measures based on detailed statutory coding or Federal Register counts that weigh all rules equally, our approach covers the entire economy and weighs naturally by newsworthiness, capturing regulatory shifts before they materialize in law. Positive shocks to deregulation boost investment, productivity, stock prices, profits, and GDP. Industry-specific deregulation shocks boost industry-level stock returns, consistent with our finding that deregulation involves measures that may impact incumbent profitability and operational efficiency more than competitive entry.

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Keywords: Deregulation, Regulation, Textual Analysis, Large Language Models, Policy Measurement, Content Classification.

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1 Introduction

Regulation and deregulation are frequently cited as obstacles to and drivers of economic growth, respectively. Yet quantifying the intensity and direction of regulatory activity remains difficult. Existing approaches face trade-offs between comprehensiveness, timeliness, and interpretability. Direct measures based on counting regulatory rules or pages in the Federal Register treat all regulatory actions equally, regardless of their economic significance or whether they increase or reduce regulatory burden.[1]

We address this measurement problem by constructing a news-based deregulation index using large language models (LLM). Our approach collects newspaper articles mentioning regulation-related terms and uses OpenAI's GPT models to evaluate each article's deregulation content. Unlike traditional keyword-based approaches such as Baker, Bloom, and Davis (2016) that simply count articles containing specific terms, our method relies on the semantic understanding capabilities of modern language models to distinguish between articles about deregulation versus increased regulation, to identify the centrality of deregulatory content within each article, and to assign gradations of intensity based on whether articles discuss advocacy, proposals, or actual enactment of deregulatory measures. This semantic classification addresses a limitation of keyword counts: an article titled "Senator Proposes Looser Regulation of Airlines" and another titled "Consumer Groups Demand Tighter Regulation of Airlines" would both increment a keyword-based regulation count, despite representing opposite regulatory directions.

Recent advances have produced more sophisticated firm-level measures of regulatory exposure. Kalmenovitz (2023) develops a measure of firm-specific regulatory intensity by using machine learning to match firms to relevant federal paperwork regulations based on textual similarity between regulation descriptions and corporate 10-K filings, then aggregating official estimates of compliance costs (in hours and responses) for each matched regulation. Calomiris, Mamaysky, and Yang (2020) analyze earnings call transcripts using natural language processing to construct firm-level measures that distinguish between discussions of increasing versus decreasing regulatory burden. While these approaches provide valuable granular, firm-specific measures at high frequency, our news-based index differs in scope and economic focus. We capture economy-wide regulatory trends and major policy episodes—such as transportation liberalization in the late 1970s, telecommunications reform in the 1990s, or financial deregulation—rather than the ongoing compliance burden that firms face. Our measure is designed to track shifts in regulatory climate and policy direction at the macroeconomic level, complementing firm-specific measures that capture heterogeneous exposure to existing regulations.

Our newspaper-based measure covers the entire economy at high frequency, distinguishes regu-

[1] Recent work by Febrizio (2021) documents the secular decline in Federal Register rule counts while noting the shift toward fewer but more comprehensive regulations.

latory direction, and weighs naturally by newsworthiness. It captures not only enacted legislation but also regulatory debates, proposals that ultimately fail, and shifts in regulatory climate before they materialize in formal policy changes. Importantly, news coverage provides a natural weighting mechanism: regulatory actions that receive extensive news coverage are more likely to be economically significant, while minor technical adjustments that generate no news coverage receive little weight. This contrasts with Federal Register-based measures that treat a narrow exemption for a single vessel identically to the rescission of a major environmental regulation if both appear as single rule publications, and with keyword-based measures that weigh brief mentions identically to articles centered on regulatory reform. Moreover, our news-based measure has a crucial advantage in capturing the effects of regulatory policy. Financial markets, business investment decisions, and a broad set of economic variables respond immediately to announcements and news about future regulatory changes, well before formal implementation. When major deregulation is announced or debated in the press, forward-looking businesses adjust hiring and investment plans, equity markets reprice affected firms, and credit markets reassess risk–all based on expectations of future policy rather than current legal reality. A news-based index captures these expectational shifts as they occur, whereas measures based solely on enacted regulations or compliance costs necessarily lag the market-relevant information by months or years. This timing advantage is particularly important for quantifying the dynamic effects of regulatory policy on economic activity.

The news-based approach comes with some obvious caveats. Media coverage may reflect political controversy rather than economic importance, and editorial decisions about which regulations merit coverage may introduce bias. To address these concerns, we validate our approach in two ways. First, we compare AI classifications against human coding of a random sample of articles, finding strong agreement ($r = 0.69$). Second, we construct an independent deregulation index by applying similar AI classification to the universe of Federal Register rules and executive orders from 1995 to 2025.[2] The comparison points to strong agreement between news-based and Federal Register measures, with the news index leading the Federal Register index by nearly one year. This lead is consistent with the regulatory process: policy discussions and executive announcements covered in news media typically precede formal agency rule-making. An executive order directing agencies to review and rescind burdensome regulations might be announced and extensively covered in January but result in specific rule rescission published in the Federal Register only much later in the year after agencies complete required notice-and-comment procedures. The news index thus provides earlier signals of regulatory change, capturing policy intentions before they materialize in official publications.

Beyond constructing and validating measures of deregulatory activity, we investigate the macroe-

[2] The Federal Register is the official daily publication where federal agencies publish proposed rules, final rules, executive orders, and notices. Under the Administrative Procedure Act of 1946, agencies must publish rules in the Federal Register before they take legal effect, and these rules are subsequently codified in the Code of Federal Regulations. The Federal Register thus represents the official record of implemented regulatory changes.

conomic consequences of deregulation. Using a structural Bayesian VAR estimated over 1962-2025, we identify deregulation shocks and trace their propagation through the U.S. economy. The results show substantial positive effects across multiple dimensions of economic activity. Deregulation shocks induce an increase in GDP and productivity, though the effects on productivity are delayed, building gradually over multiple years. Investment reacts more than GDP, in line with the findings of Alesina, Ardagna, Nicoletti, and Schiantarelli (2005) that deregulation stimulates capital formation. These effects persist for several years, consistent with deregulation requiring time to reallocate resources and for its productivity benefits to fully materialize. Employment also expands. The price level declines slightly, suggesting that deregulation operates primarily through supply-side channels.

Financial markets respond strongly and immediately to deregulation shocks. Stock prices surge reflecting the market's assessment of improved profitability and growth prospects, while the VIX volatility index declines, suggesting that deregulation reduces economic uncertainty. This pattern of responses—immediate reactions in forward-looking financial variables and investment, followed by gradual and delayed productivity gains—is in line with the technology news shock literature (Beaudry and Portier, 2006), which documents similar dynamics when agents receive information about future improvements in the economic environment.

We also examine how financial markets respond to deregulation using our sectoral deregulation indexes matched to the 49 Fama-French industry portfolios. Our empirical approach exploits both cross-industry heterogeneity in regulatory exposure and time-series variation in deregulation intensity, and traces the dynamic effects of deregulation shocks on industry returns using panel local projections. This framework allows us to characterize the timing of market responses to deregulation without imposing strong parametric restrictions, while controlling for aggregate macroeconomic conditions. We find that deregulation shocks lead to positive and statistically significant increases in industry returns. Returns respond on impact, indicating that deregulation-related news is priced immediately by financial markets. The results are robust across alternative macroeconomic controls, fixed-effects specifications, transformations of the deregulation index, and clustering schemes.

Our paper contributes to a growing literature examining the economic effects of regulation and deregulation. On the theoretical side, our work relates to Blanchard and Giavazzi (2003), who model how product and labor market deregulation reduce and redistribute rents, with implications for wages, unemployment, and the labor share. Dawson and Seater (2013) develop an endogenous growth model showing that regulatory accumulation, measured by page counts in the Code of Federal Regulations, reduced US economic growth by approximately 2 percentage points annually from 1949 to 2005, with substantial effects on total factor productivity, physical capital, and labor. Building on this framework, Coffey, McLaughlin, and Peretto (2020) construct a multisector Schumpeterian model of endogenous growth and estimate that regulatory restrictions dampened growth by roughly 0.8 percent per year since 1980 using industry-level data from RegData (Al-Ubaydli

and McLaughlin, 2017). Sinclair and Xie (2021) construct monthly news-based indexes of regulatory sentiment and uncertainty, finding that negative shocks to regulatory sentiment are associated with lower output and employment. Drechsel and Miura (2025) use a high-frequency identification strategy, measuring market surprises in bank stock prices around Federal Reserve speeches to estimate the macroeconomic effects of bank regulation news, finding that tighter bank regulation reduces lending and economic activity. Diercks, Mulligan, Soques, and Waller (2025) attribute the post-2016 election stock market rally primarily to factors other than tax legislation—including deregulation—suggesting that regulatory policy changes were an important driver of equity market performance during this period.

Complementing these aggregate growth studies, cross-country empirical work has documented the channels through which regulation affects economic performance. Djankov, La Porta, Lopez-de Silanes, and Shleifer (2002) show that entry regulations impose substantial costs across countries, with heavier regulation associated with higher corruption and larger informal sectors rather than improved economic outcomes. Cacciatore and Fiori (2016) find that lowering regulation is contractionary in the short-term but expansionary over longer horizons. Bergant, Fernández, Teoh, and Uribe (2026) rely on large language models to construct a comprehensive dataset of cross-border flow restrictions worldwide since the 1950s by analyzing the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions. These reports contain narrative descriptions of policy changes regarding capital controls and exchange restrictions for nearly 200 countries. Alesina et al. (2005) provide both theoretical and empirical evidence that product market regulation—particularly entry barriers—reduces investment by compressing the returns to capital. Our analysis contributes to this literature by providing time-series evidence on the dynamic macroeconomic responses to deregulation efforts, allowing us to trace out the adjustment paths of productivity, investment, and output following regulatory changes.

The paper proceeds as follows. Section 2 describes the data collection, the development of our classification prompt, and validation against human coding. Section 3 presents the deregulation index and its decompositions by sector, by proposed versus enacted measures, and looking at deregulation across countries and regions. It also constructs a parallel regulation index to capture the full spectrum of regulatory activity. Section 4 validates the news-based measure against Federal Register data, documenting strong correlation and the expected temporal ordering. Section 5 examines the economic effects of deregulation shocks using vector autoregression analysis. Section 6 evaluates the effects of sectoral deregulation on industry returns based on panel local projections. Section 7 compares our index to existing measures. Section 8 concludes.

2 Data and Methodology

2.1 Article Collection

We source newspaper data from the New York Times, which provides comprehensive coverage of U.S. regulatory policy and maintains consistent editorial standards over time. The sample is daily and spans from 1960 to 2025.[3]

Ideally, one would classify the entire universe of New York Times articles to ensure no relevant content is missed. However, applying AI classification to all approximately 2.5 million articles published during this period would be computationally expensive and inefficient, as the vast majority of newspaper articles contain no discussion of regulatory policy. We therefore adopt a two-stage approach: first identifying a subset of articles likely to discuss regulation or deregulation, then applying intensive AI classification to this subset.[4]

To identify potentially relevant articles, we develop a search query designed to capture articles discussing regulatory policy with high recall. The query construction proceeded systematically: we began by sampling articles containing only the terms "regulat*" and "deregulat*," then analyzed which words appeared disproportionately often in these articles relative to their frequency in the overall corpus. This analysis uncovered a broader set of terms commonly associated with regulatory discussions—including "antitrust," "competition," "compliance," "interstate commerce," "marketplace," "monopoly," "provisions," "liberalization," "privatization," "executive order," "federal register," "red tape," and phrases like "repeal rules" or "price controls." We then constructed a Boolean search query combining these regulation-related terms with an economics filter to focus on economically-relevant regulations:

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SEARCH QUERY:

(antitrust OR competiti* OR compliance OR deregulat* OR interstate OR
marketplace OR monopol* OR provision* OR regulat* OR liberaliz* OR privatiz*
OR "executive order" OR "federal register" OR "government control" OR "red
tape" OR (rule* N/2 (abolish* OR loosen* OR repeal*)) OR (price* N/2 (control*
OR support*)))

AND

(econom* OR trade OR commerce OR business* OR financ* OR market* OR capital* OR
work* OR industr*)
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[3] We replace the New York Times with the Washington Post on the few occasions when the New York Times is not published, notably during the 1978 newspaper strike. This ensures continuous daily coverage throughout the sample period.

[4] Classification and index construction are conducted through newspaper search queries using ProQuest Global Newsstream Collection, ProQuest Historical Newspapers, and the textual analytics tools of ProQuest TDM Studio (see https://tdmstudio.proquest.com.)

This query retrieves about 611,000 articles from the New York Times. We apply identical queries to the Washington Post (about 400,000 articles) and Chicago Tribune (about 320,000 articles) for robustness analysis. To assess the comprehensiveness of our search strategy, we examine whether articles outside our query contain deregulation content. We classify a random sample of 2,000 articles from the remaining New York Times corpus—articles that do not match our search query—using the same AI methodology we apply to the full sample (described in Section 2.2). In this sample, only 0.4 percent discuss deregulation, compared to 5.4 percent among articles retrieved by our query. This 13-fold difference indicates that our search strategy successfully concentrates deregulation-relevant content. While we potentially exclude some deregulation-mentioning articles, this exclusion would only bias our index if these omitted articles exhibited systematically different temporal patterns than the included articles—for instance, if phrases like "repeal restrictions" were frequently used to discuss deregulation *only* in the 1980s but were not captured by our search terms. Reassuringly, the deregulation-mentioning articles in the 2,000-article sample exhibit temporal patterns similar to our baseline index, suggesting that omitted articles are unlikely to introduce systematic bias.

2.2 Prompt Development

We conducted extensive preliminary analysis of newspaper articles mentioning regulation and deregulation, examining keywords frequently present in these articles. This analysis led to a sample of terms likely to be present in deregulation-relevant articles. From this corpus, we extracted a subsample of 200 randomly selected articles that we evaluated manually, coding each on a 0.0–1.0 scale using a structured protocol.

We then developed a classification prompt through an iterative refinement process specifically optimized for GPT-4o-mini, our preferred model given cost and speed considerations. Recent research demonstrates that LLM performance in classification tasks is highly model-dependent: prompts that work well for one architecture may perform poorly on another, smaller models can match or exceed the performance of larger models when prompts are specifically tailored to their architecture (Pecher, Srba, and Bielikova, 2025), and variations in phrasing that improve one model's accuracy can paradoxically degrade performance in another (Tang, Tuncel, Koerner, and Runkler, 2025). Following this insight, we calibrated our prompt for GPT-4o-mini through systematic testing on development samples, adjusting definitions, examples, and scoring guidance to maximize classification accuracy for this specific model. This optimization process balanced the model's computational efficiency—enabling classification of more than 600,000 articles at reasonable cost—with its classification performance.

The resulting prompt instructs GPT-4o-mini to evaluate the first 3,000 characters (about 700 words) of each article and assign scores for U.S. overall deregulation and foreign deregulation.

Given that articles average 1,500–2,000 words in length, focusing on the initial 700 words isolates the most essential content, exploiting the inverted pyramid structure of news writing where key information appears at the beginning. The key elements of the prompt are displayed in Figure 1.[5] Key elements include: (i) a clear definition distinguishing deregulation from regulation; (ii) an economic focus emphasizing business-affecting regulations while excluding tax policy and social policy without direct economic regulatory impact; (iii) a scoring scale from 0.0 (pro-regulation or no deregulation content) to 1.0 (major federal deregulation enacted); (iv) explicit guidance on distinguishing advocacy, proposals, and enacted measures; (v) special treatment of trade liberalization, scoring bilateral agreements on both U.S. and foreign indexes; and (vi) rules for handling articles about past events versus current policy developments.

2.3 Human and AI Validation

A critical test of any AI-based classification is whether it captures the same content dimensions that human coders perceive. We validate the GPT-4o-mini classifications by comparing them to independent human judgments for a sample of 455 articles. Together with a team of research assistants, we read the same article text and applied the identical classification rubric used by the AI. The resulting correlation between GPT-4o-mini and average human scores (r=0.69) is substantial—indeed, it approaches the pooled inter-human correlation of 0.72, indicating that the AI's classification reliability is comparable to agreement between highly educated human coders.

We considered several alternative models in addition to GPT-4o-mini, and found little difference across alternative LLM models. Yet for classifying 600,000+ articles, GPT-4o-mini offered decisive practical advantages: it processes articles at approximately one per second—roughly three times faster than GPT-5—while costing roughly one-tenth as much. Appendix Table A.1 reports detailed validation statistics.

2.4 Index Construction

For each article in our sample, we apply the prompt and obtain deregulation scores. We normalize these scores by the total number of articles published in the New York Times each day. The daily index is computed as:

$$\text{Index}_t = \frac{\sum_{i \in \text{Sampled Articles}_t} \text{Score}_i}{\text{Total NYT Articles}_t}$$

where the numerator sums deregulation scores across all sampled articles i published on day t, and the denominator counts all New York Times articles published on day t, regardless of whether they

[5] The complete prompt includes detailed examples calibrated to the scoring scale. For instance, examples include: (1) "Senator Proposes Looser Regulation of Airlines" coded as proposed deregulation (score 0.6), (2) "President signs telecommunications deregulation into law" coded as enacted deregulation (score 1.0), and (3) articles discussing historical deregulation from many years past coded as no current deregulation content (score 0.0). These examples are integrated throughout the prompt to guide the model's classification.

match our search query.[6]

3 The Deregulation Index

3.1 Main Index

Figure 2 displays the deregulation index from 1960 to 2025.[7] The index exhibits substantial temporal variation, with distinct episodes corresponding to major regulatory reforms. The index rises in the mid-1970s, capturing the Securities Act Amendments of 1975 that eliminated fixed brokerage commissions and early railroad deregulation initiatives proposed by the Ford Administration. The late 1970s witness a rise reflecting the Carter administration's agenda across transportation sectors—including airline deregulation—as well as banking reforms that addressed interest rate ceilings. This period marks a shift from New Deal-era regulatory frameworks toward market-based approaches.

The index spikes at the beginning of the Reagan presidency and remains elevated throughout. This is consistent with the administration's use of the Task Force on Regulatory Relief to immediately cancel or postpone dozens of regulations across the energy, labor, and transportation sectors. The late 1980s and 1990s capture two additional waves: telecommunications reform, which included opening markets to foreign investment, and financial services modernization, culminating in the repeal of Glass-Steagall restrictions.

The index declines substantially during the 2000s and much of the Obama administration, consistent with the post-financial crisis regulatory environment. The index rises sharply during the first Trump administration (2017–2020), utilizing the Congressional Review Act to rapidly dismantle environmental, telecommunications, and financial rules. By the second Trump administration beginning in 2025, the index reaches very high levels. This reflects an intensified agenda, including the reorientation of the EPA toward reducing business costs, the push towards reduction of capital requirements for the nation's largest banks, and streamlined approvals for nuclear energy.

In the Appendix we illustrate robustness to alternative news sources. We construct analogous deregulation indexes using articles from the Washington Post and Chicago Tribune, applying identical classification procedures.[8] The high correlation across sources confirms that our measure

[6] Two offsetting trends affect New York Times output over our sample period. First, the newspaper published approximately 120 articles per day on average before 2000, declining to approximately 85 articles per day post-2000. Second, average article length increased from about 1,000 words in the 1970s to 1,500 words in the 2020s. These trends necessitate a normalization choice. Using raw sums of deregulation scores (without normalizing by article count) would cause the index to decline mechanically over time as fewer articles are published, even if deregulation intensity remained constant. Alternatively, one could multiply each article's score by its length to offset the declining article counts by up-weighting longer articles. We instead divide by total article count, which corrects for changes in publication volume while treating each article's deregulation score equally. This approach is natural given that our classification evaluates each article on a 0–1 scale based on a fixed portion of text (the first 3,000 characters). Alternative normalizations would yield qualitatively similar results.

[7] Figure A.7 in the Appendix also shows the 30-day moving average version of the index.

[8] See Appendix Figure A.6.

captures genuine variation in deregulatory activity rather than idiosyncrasies of New York Times editorial decisions.

3.2 Proposed vs. Enacted Deregulation

Our classification methodology distinguishes between different stages of the regulatory reform process. Articles discussing *advocacy* capture calls for deregulation from business leaders, industry groups, economists, or policymakers—essentially, arguments that certain regulations should be removed. Articles discussing *proposals* capture formal legislative or regulatory initiatives, such as bills introduced in Congress or proposed agency rule-makings that have not yet been enacted. Articles discussing *enacted* measures capture actual implementation: laws signed by the president, final agency rules published in the Federal Register, or executive orders with immediate legal force.

Figure 3 decomposes the deregulation index into these stages. The proposed index (combining advocacy and formal proposals) captures forward-looking information about potential regulatory changes, while the enacted index measures actual implementation. The lead-lag analysis points to a clear temporal ordering: news about proposed deregulation leads enacted deregulation by two months, consistent with the typical lag between when deregulatory initiatives are announced or debated and when they are formally implemented. This finding validates our classification approach—the LLM-based approach successfully distinguishes not just the direction of regulatory change (deregulation vs. regulation) but also its stage in the policy process.

This temporal ordering provides important context for understanding the relationship between our news-based index and the Federal Register deregulation index constructed later in Section 4. The news index naturally weighs toward earlier stages of the policy process—capturing advocacy, legislative proposals, and announcements of executive intent that generate news coverage. The Federal Register, by contrast, records only the final administrative outcome: the formal publication of rules and executive orders. The eleven-month lead of the news index over the Federal Register index (documented in Section 4) reflects this natural progression: deregulatory proposals generate news coverage, followed by legislative deliberation or agency rule-making processes, and finally formal publication months later. The two-month lead between proposed and enacted components within the news index represents the earliest stage of this multi-step process, illustrating how regulatory reforms unfold gradually from initial advocacy through formal implementation.

3.3 Deregulation by Sector

For articles with positive deregulation scores, we classify articles into sectors: finance, energy, telecommunications and technology, transportation, trade, health, housing, and other. Figure 4 displays a heatmap showing the relative intensity of deregulation coverage by sector over time. Each row shows a sector's intensity relative to its own historical average (1.0 = average). The

heatmap shows that transportation deregulation peaked in the early 1980s, financial deregulation was elevated from the early 1980s through the late 1990s, telecommunications peaked around 1996, and recent years show broad-based deregulation activity across multiple sectors.

We will exploit the cross-sectional variation in deregulation by sector in the empirical analysis of Section 6, where we explore how financial markets respond to sector-specific deregulation.

3.4 Deregulation by Regulatory Type

Understanding *what kind* of regulations are being reduced provides valuable insight into the nature of regulatory reform. Different types of regulation impose distinct economic costs through different channels: price controls distort resource allocation, entry barriers restrict competition and market structure, while product and service standards impose ongoing compliance costs on firms' day-to-day activities. The composition of deregulation shows not only which regulatory burdens policymakers prioritize for removal, but also which economic agents stand to benefit—whether new market entrants challenging incumbents, or established firms seeking operational flexibility.

Taxonomy Development and Classification Methodology. For articles receiving positive deregulation scores, we apply an additional classification prompt to identify the primary type of deregulation discussed. We develop a parsimonious classification that isolates deregulation by its core economic mechanism: whether it changes *who* can operate in a market, *where* firms can operate, *what* they can offer, *how much* they can charge, or *how* they manage their workforce. We classify deregulation into six categories. *Price controls* includes removal of price ceilings, floors, rate-of-return regulations, or interest rate caps. *Entry/exit barriers* includes reducing licensing requirements, permits, certificates of need, or antitrust restrictions. *Product and service controls* includes eliminating quality specifications, safety standards, disclosure requirements, or restrictions on what products firms may offer. *Geographic restrictions* includes allowing firms to operate in new territories or removing location-based limitations. *Labor market controls* includes loosening hiring and firing restrictions, reducing minimum wage requirements, or enabling cross-state occupational license recognition. The *General* category captures non-economic social regulations, government spending programs, and articles where deregulation appears only as background context.[9]

Temporal Patterns in Deregulation Types. The composition of deregulation has shifted markedly across the six decades of our sample. Table 1 presents the distribution over time, illustrating clear structural changes in the nature of American regulatory reform.

The 1970s stand apart as the decade of price deregulation, with price controls accounting

[9] The classification was developed through iterative refinement. We provided detailed definitions and examples to the language model, instructed it to choose the single most central category when articles discussed multiple types, and included guidance on edge cases.

for nearly one third of coverage—about half again as large as their share in the 1960s. This concentration reflects the dismantling of Nixon-era wage and price controls, the phased elimination of oil and natural gas price regulations, and early airline fare deregulation. Price controls have since declined dramatically, falling to just over six percent in the 2020s, reflecting the near-complete abandonment of administered pricing in competitive sectors.

From the 1980s onward, deregulation has been dominated by the removal of product and service controls—changes to quality standards, disclosure requirements, safety specifications, and restrictions on what products firms may offer. This category has remained the largest single type in every decade since the 1980s, rising from roughly one quarter of coverage in the 1960s to over one third by the 2020s. Entry and exit barrier removal—including airline route liberalization, interstate banking deregulation, and telecommunications competition—generated significant policy attention, yet its share of news coverage remained broadly stable at roughly one fifth across all decades, never surpassing product and service deregulation.

This dominance is consequential. While high-profile entry barrier reforms sought to restructure entire industries through competition, the sustained prevalence of product and service deregulation reflects a persistent focus on reducing compliance requirements within existing frameworks. Such reforms may favor incumbents with established compliance infrastructure rather than facilitating new market entry, consistent with the profit-over-competition pattern documented in Figure 11.

Geographic restrictions display a distinctive pattern, peaking in the 1960s at roughly one quarter of coverage, declining sharply in the 1970s, rebounding in the 1990s with interstate banking reform, then declining to roughly half its 1960s share by the 2020s as most significant geographic barriers have been removed. Labor market deregulation remains modest and stable across all decades, hovering around five percent, suggesting that labor regulations have not been a primary focus of deregulatory reform.[10]

This evolution—from the price deregulation peak of the 1970s to the sustained dominance of product and service controls from the 1980s onward—suggests that American deregulation has progressed through distinct phases. Early reforms attacked the most distortionary regulations (administered prices), while subsequent decades have focused primarily on reducing compliance burdens within existing market structures. These compositional shifts indicate that recent deregulation operates through different channels than the reforms of the 1970s, with potentially different implications for competition, market structure, and economic efficiency.

3.5 Deregulation by Geography

We classify each deregulation article by countries or geographic region (USA, Canada, Western Europe, UK, Japan, China, Asia, Eastern Europe, Russia, Latin America, Middle East, Africa).

[10] The "other" category has grown substantially, roughly tripling from the 1960s to the 2020s, reflecting the increasingly diffuse nature of regulatory debates.

Figure 5 displays the results. While we cannot compare the level of deregulation across countries (all indexes are normalized to share a common mean), the indexes showcase clear patterns of deregulation within countries over time.

Eastern Europe and Russia show the most dramatic spike during 1989—1992, peaking at over 800 as countries dismantled central planning. This period saw Poland's economic overhaul, Czechoslovakia's relaxation of travel restrictions, and Soviet price deregulation following the collapse of communist regimes.

Latin America peaks from 1988 through 1995, reflecting the shift from import substitution to market-oriented policies. This includes Argentina's privatization program, Mexico's deregulation under President Salinas, and Brazil's opening of the oil sector, coinciding with the Washington Consensus period.

Western Europe and the UK show elevated deregulation from 1985 through 2000. The UK leads with Thatcher-era reforms including the London Stock Exchange's "Big Bang" (October 1985) and privatization of state-owned enterprises. The sustained elevation through the 1990s reflects the Single Market program and telecoms liberalization across the European Union.

Japan peaks sharply in the mid-1990s following the asset price bubble collapse, with reforms in airline, telecommunications, and financial sectors. China's index rises sharply around 2000, coinciding with WTO accession. The broader Asia index captures parallel liberalization in India, Vietnam, and other countries. Canada peaks in 1988—1989, driven by the Canada—U.S. Free Trade Agreement. The Middle East shows elevated activity during the mid-1970s through early 1980s, reflecting Egypt's *infitah* and Israeli currency deregulation.

Deregulation occurred in waves across regions rather than as a uniform global trend. Anglo-American reforms preceded Continental Europe, Latin America, and Asia. Post-Communist transitions generated index values an order of magnitude larger than reforms in established market economies.

3.6 Deregulation vs. Regulation

Any discussion of deregulation cannot ignore the fact that substantial regulation often takes place at the same time. We construct a parallel regulation index using an analogous prompt (see Appendix). Figure 6 displays both indexes. We note that deregulation cycles appear more volatile than regulation cycles, with sharper peaks corresponding to major reform episodes.

While both series are indexed to mean 100 in the 1985-2019 period, the underlying shares (not shown) reveal that regulation receives more news coverage than deregulation throughout the sample: the number of news articles discussing regulation is about four times larger than the number of news articles discussing deregulation. However, deregulation exhibits substantially greater volatility, with sharper peaks and troughs corresponding to major reform episodes. This pattern implies

that although the baseline level of regulatory discussion dominates news coverage, deregulation shocks drive much of the time-series variation in net regulatory sentiment. The secular increase in regulatory coverage over the sample period implies that a net deregulation index, constructed as (deregulation - regulation) normalized by total articles, would exhibit a modest downward trend. This finding is consistent with Al-Ubaydli and McLaughlin (2017) and Coffey et al. (2020), who document the long-run accumulation of regulatory restrictions in the United States since 1980.

4 Validating the News Deregulation Index: Evidence from Federal Register Documents

A common approach to measuring regulatory activity counts rules or pages in the Federal Register.[11] However, this method has a conceptual flaw: deregulation requires formal rule-making. Under the Administrative Procedure Act of 1946, removing or modifying regulations requires the same procedural steps as creating new ones—proposing changes, accepting public comments, and issuing final rules. This symmetry makes rule counts a noisy proxy for both regulation and deregulation. Deregulatory actions appear in the Federal Register as rules, often requiring careful analysis to identify their direction. Simple counts treat major deregulatory rescissions identically to new regulatory requirements. During intensive deregulation, rule counts might increase as agencies formally dismantle existing regulations.

The counting problem extends beyond final rules. The Federal Register publishes multiple document types with varying regulatory significance: final rules carry legal force; proposed rules invite comment but may be modified or withdrawn; notices announce agency actions without establishing binding requirements; presidential documents often direct agencies to initiate, modify, or rescind regulations. Each type plays a different role, and their relative frequencies vary for reasons unrelated to regulatory burden.

These challenges motivate our approach: rather than counting documents, we classify content using LLMs to identify and score deregulatory actions. The model distinguishes rules that reduce regulatory requirements from those that increase or maintain them. We apply this classification to Federal Register rules and executive orders from 1995 to 2025, creating a deregulation index measuring the intensity of implemented policy changes. This Federal Register-based index validates our news-based deregulation index, which captures regulatory sentiment at earlier policy stages.

4.1 Data Collection

We collect the universe of Federal Register publications from 1995 to 2025, comprising approximately 120,000 documents. This includes final rules issued by federal agencies and executive orders

[11] See for instance Carey (2019).

issued by the President. Each document is retrieved from the Federal Register's public database in CSV and TXT format, which provides structured access to publication dates, issuing agencies, titles, and text content.[12]

For each rule, we extract the title, issuing agency, and abstract. For executive orders, we extract the title and full text. This standardized format allows for systematic analysis across three decades of regulatory activity.

4.2 AI Classification Methodology

We use the Amazon Nova Micro large language model to classify each document's deregulatory content.[13] The model receives a structured prompt defining deregulation as "the reduction or elimination of government regulations," including actions such as rescinding rules, simplifying compliance requirements, delegating authority, granting exemptions, and relaxing standards. The prompt explicitly distinguishes between deregulation (reducing regulatory burden) and new regulation (imposing additional requirements).

The model assigns each document a deregulation intensity score on a discrete scale: 0.0, 0.2, 0.4, 0.6, 0.8, or 1.0. A score of 0.0 indicates no deregulatory content or new regulation. Higher scores reflect increasing intensity based on both the depth of regulatory relief (how much burden is reduced) and breadth (how many entities or sectors are affected). For example, a score of 0.2 represents a narrow exemption affecting few entities, while 1.0 represents comprehensive rescission of major regulations affecting entire sectors.

The prompt includes detailed examples calibrating the scoring scale. For instance, a new airworthiness inspection requirement receives 0.0, a single-vessel exemption from maritime regulations receives 0.2, relaxed fishing restrictions affecting West Coast commercial fleets receive 0.6, and full repeal of the Clean Power Plan receives 1.0. Separate but parallel prompts are used for rules and executive orders to account for differences in document structure and content.[14]

4.3 Index Construction

We aggregate the deregulation scores into a time series index. For each day, we sum the deregulation scores of all published documents and divide by the total number of documents published that day. This normalization accounts for variation in Federal Register publication volume over time. Days with no publications receive a value of zero. Notably, the total number of rules published has declined substantially since the mid-1990s (see Appendix Figure A.8). Febrizio (2021) documents

[12] The Federal Register data are accessed via `https://www.federalregister.gov/`. The 1995 starting date reflects the availability of Federal Register documents in machine-readable format suitable for text analysis and with clear classification of rules.

[13] We also tested Meta Llama 3 8B, Meta Llama 3 70B, Amazon Nova Pro, Amazon Nova Lite, and Google Gemma 3 27B on a selected sample, with qualitatively similar results.

[14] Complete classification prompts are available in the Appendix Figures A.3 and A.4.

this trend and finds it is consistent with a shift toward fewer but larger rules, with both the economic impact and page length of rules increasing over time, suggesting agencies may be bundling discrete regulatory issues into comprehensive rule-makings. This secular decline in rule counts reinforces the importance of normalizing by document volume when constructing our index.

The daily series is then aggregated to monthly frequency by taking monthly sums of both the numerator (total deregulation scores) and denominator (total documents), preserving the normalized structure. We apply a 12-month backward-looking moving average to smooth short-term volatility and better capture underlying trends in deregulatory activity.[15] Finally, we index the series to the mean value over the 1995–2019 period, setting that average equal to 100, which facilitates comparison with the news-based index.

4.4 The Federal Register Deregulation Index

Figure 7 plots the Federal Register deregulation index alongside the news-based deregulation index. The Federal Register index identifies three major deregulatory episodes. The mid-1990s episode reflects the convergence of the Clinton administration's "Reinventing Government" initiative and congressional regulatory reform pressure following the 1994 midterm elections. Key actions include the abolition of the Interstate Commerce Commission and a sweeping cleanup of obsolete transportation regulations, the implementation of the Federal Agriculture Improvement and Reform Act eliminating many Depression-era farm programs, the Environmental Protection Agency removing obsolete hazardous waste and air pollution provisions, the Federal Communications Commission eliminating the financial interest and syndication rules and implementing the landmark Telecommunications Act of 1996, and the Department of Housing and Urban Development streamlining housing program procedures. The 2017–2019 peak includes the Federal Communications Commission's repeal of net neutrality rules, capital rule simplifications and Volcker Rule revisions rolling back post-2008 financial crisis regulations, and pre-pandemic health sector reforms including Medicare and Medicaid modernization and drug pricing reforms. The 2025 episode stands out with a concentrated set of directives targeting regulatory review processes, energy policy, and federal procurement, alongside agency rescissions of National Environmental Policy Act procedures, Title IX nondiscrimination provisions, and Bureau of Land Management regulations governing mining and leasing on federal lands.

The Federal Register index exhibits strong co-movement with the news-based index, with a contemporaneous correlation of 0.65, capturing the same major deregulatory episodes. The news index leads the Federal Register index by approximately eleven months, with a maximum correlation of 0.80 at this lag. This temporal pattern is consistent with news coverage reflecting discussions and anticipation of regulatory changes before they are formally published in the Federal Register.

[15] Appendix Figure A.9 shows the Federal Register Deregulation Index at monthly frequency alongside the 365-day moving average.

Regulatory changes often follow a predictable sequence: initial policy announcements, public debate covered in news media, agency rule-making processes, and final publication of rules months later. The news index captures earlier stages of this process, while the Federal Register index measures the ultimate administrative outcomes.

The strong correlation between indexes constructed from entirely different sources—newspaper articles versus official government documents—provides validation for both measures. That these independently constructed measures move together, with a plausible temporal ordering, strengthens confidence that both are capturing genuine variation in U.S. regulatory policy over three decades rather than measurement artifacts. The Federal Register index may be particularly useful for researchers interested in implemented deregulatory policy changes rather than regulatory sentiment or anticipation.

4.5 Agency-Level Patterns in Deregulation

Beyond aggregate trends, we examine which federal agencies and policy actors have driven deregulation over time. The Federal Register data allow us to identify the issuing agency for each rule and executive order, enabling analysis of deregulation patterns across different parts of the federal government. This agency-level perspective reveals important heterogeneity in the sources and composition of deregulatory activity across presidential administrations and over the business cycle.

We group federal agencies into ten major categories based on their primary policy domains (see Table A.2 in the Appendix for complete agency assignments). We compute a monthly deregulation intensity measure for each agency group by summing the AI-classified deregulation scores of all rules and executive orders issued by agencies in that group, normalized by the total number of documents. Figure 8 presents a heatmap displaying this relative deregulation intensity for each agency group over time. The color scale ranges from blue (below-average activity) to red (above-average activity), with white representing activity equal to the group's historical average. This scale allows us to identify periods when specific agency groups were particularly active or inactive in deregulation relative to their typical behavior. The percentages in parentheses indicate each group's average share of total Federal Register deregulation over the full sample period.

The mid-1990s Clinton-era episode exhibits broad-based intensity, with Transportation and Agriculture as the two standout sectors in 1996. Notably, Executive Orders remain well below average intensity throughout this period, indicating a bottom-up, agency-initiated approach driven through departmental rule-making and legislation rather than presidential directives. Telecom & Technology follows a distinct pattern of steady growth extending into the early 2000s, reflecting the multi-year rulemaking process to implement the Telecommunications Act of 1996 rather than a concentrated one-time shock.

The Trump administration's first term (2017–2020) demonstrates a marked shift toward a more

centralized deregulatory strategy. Unlike the Clinton era, the Executive Orders row transitions from well below average to above-average intensity, signaling an increasing reliance on presidential directives. General government agencies, Finance, and Telecom & Technology all show above-average intensity, reflecting a broad government-wide reform effort. The Health sector shows elevated activity in both 2019 and 2020–2021, with the former driven by pre-pandemic administrative reforms and the latter by emergency adjustments facilitating pandemic response. Together, these patterns illustrate how both sustained administrative reform and acute crises can drive targeted deregulatory responses across sectors.

The 2025 period marks a further intensification of executive-led deregulation, with the Executive Orders category reaching its usage peak across the entire sample. In contrast to the Clinton era's modernization and streamlining approach, or the first Trump term's rollback of post-crisis regulations, this period is characterized by broad-based deregulation.

5 The Macroeconomic Effects of Deregulation

While deregulation is often advocated as a means to promote economic growth, enhance productivity, and stimulate investment, the empirical evidence on its macroeconomic impacts remains mixed and context-dependent. The theoretical channels through which deregulation operates are various: reducing compliance costs for firms, lowering barriers to entry and fostering competition, reallocating resources toward more productive uses, and potentially affecting aggregate demand through confidence and expectations channels. However, deregulation may also involve tradeoffs, such as increased uncertainty during transition periods or reduced oversight that could amplify financial or economic instability. Quantifying these effects is essential for evaluating the implications of regulatory policy changes.

This section provides empirical evidence on the dynamic macroeconomic effects of deregulation shocks using a structural vector autoregression (VAR) framework. By identifying exogenous movements in deregulatory activity and tracing their propagation through the economy, we characterize how deregulation affects key macroeconomic aggregates including productivity, output, investment, consumption, employment, and financial variables over time.

5.1 Empirical Methodology

We estimate a Bayesian VAR to assess the dynamic effects of deregulation shocks on the U.S. economy. The Bayesian approach offers several advantages for our analysis: it provides a method for incorporating prior information to address parameter proliferation in high-dimensional VARs and delivers posterior distributions that naturally quantify uncertainty around impulse response estimates.

The reduced-form VAR specification takes the usual form:

$$\mathbf{y}_t = \mathbf{c} + \sum_{i=1}^{p} \mathbf{A}_i \mathbf{y}_{t-i} + \mathbf{u}_t, \quad \mathbf{u}_t \sim N(\mathbf{0}, \mathbf{\Sigma}) \tag{1}$$

where $\mathbf{y}_t$ is an $n \times 1$ vector of endogenous variables at time t, $\mathbf{c}$ is a vector of constants, $\mathbf{A}_i$ are $n \times n$ coefficient matrices for $i = 1, \ldots, p$ lags, and $\mathbf{u}_t$ is a vector of reduced-form residuals with covariance matrix $\mathbf{\Sigma}$.

We use a traditional Minnesota prior to deal with the large number of parameters in our VAR system (Litterman, 1986). The prior shrinks the coefficient matrices toward a random walk representation, reflecting the belief that each variable follows a unit root process and that own lags carry more predictive information than lags of other variables. The hyperparameter governing the overall tightness (λ) is set to its optimal value via a grid search that maximizes the marginal likelihood. We estimate the model with six lags, generating 10,000 draws from the posterior distribution, with estimation sample spanning from 1962:Q3 to 2025:Q3.

5.2 Data

The VAR includes variables capturing different dimensions of macroeconomic activity, regulatory policy, and financial conditions. All variables are measured at quarterly frequency in levels. Monthly series are converted to quarterly by taking the average over each quarter. The information set is comprised of the regulation and deregulation indexes constructed in this paper, utilization-adjusted total factor productivity, real per capita GDP, real per capita investment, real per capita consumption, per capita hours worked, personal consumption expenditures (PCE) price index, the 1-year Treasury yield, real per capita government expenditure, the S&P 500 index, consumer confidence, the CBOE volatility index (VIX), real per capita corporate profits, and corporate profits tax rate.[16] Detailed variable definitions and sources are provided in the Data Appendix. Real variables (TFP, GDP, investment, consumption, government expenditure, hours, corporate profits) are expressed in logs, while the regulation and deregulation indexes, financial yields, the VIX, and the corporate profits tax rate enter in levels.

We identify deregulation shocks using a recursive identification scheme, with the regulation index first, followed immediately by the deregulation index, to allow for the possibility that regulatory actions may influence deregulatory actions within the same quarter, but not vice versa.

[16] Corporate profits tax rate constructed as the corporate income tax liability change$_t$/corporate profits$_{t-1}$, as in Mertens and Ravn (2013).

5.3 Results

Figure 9 presents the estimated impulse responses to a one-standard-deviation deregulation shock. The figure displays median responses (solid lines) along with 68% posterior credible intervals (shaded regions) for all 15 variables in the system.

The deregulation shock generates a persistent increase in the deregulation index itself, suggesting that deregulatory episodes tend to unfold over multiple quarters rather than as discrete one-time events, consistent with the administrative and political economy of regulatory reform. Total factor productivity rises gradually, reaching a new higher level in the long-term. This productivity response is consistent with deregulation reallocating resources toward more productive uses, reducing distortions, and potentially spurring innovation. Real GDP increases, with the effect emerging within 4-6 quarters and persisting for several years, and with an almost one-to-one translation of productivity to activity. Investment responds particularly strongly, aligning with the predictions in Alesina et al. (2005), who show that entry liberalization increases competition, compresses markups, and raises the marginal revenue product of capital. In their model, lower regulatory barriers increase the present discounted value of returns to capital investment, making investment the primary channel through which deregulation affects economic activity. Our empirical evidence of investment responding more than twice as strongly as GDP supports this prediction that deregulation works by encouraging capital formation. Consumption responds more modestly, while hours worked expands, indicating employment gains consistent with increased production capacity.

The price level exhibits a slight decline following the deregulation shock, consistent with supply-side expansion putting downward pressure on inflation. The 1-year Treasury yield shows a small positive response, potentially reflecting increased real interest rates in response to improved growth prospects. Government expenditure does not react in the first years following the shock, but moves toward modest expansionary stance in the long-term.

Corporate profits rise on impact following the deregulation shock, peaking in the medium term. This profit increase reflects the combined effects of reduced regulatory compliance costs, improved allocative efficiency, and enhanced productive capacity. Corporate profits tax rates, in turn, do not react to the deregulation shock, reinforcing the fact that our deregulation index does not capture tax changes, a point we made explicit when constructing the classification prompt (figure 1).

Stock prices surge on impact and continue to increase in the medium-term, reflecting the market's positive assessment of deregulation's effect on corporate profitability and future growth. Consumer confidence effects are more muted, but also positive in the medium-term. The VIX volatility index declines on impact, suggesting that deregulation may reduce perceived economic uncertainty.

The regulation index itself shows a small negative response to the deregulation shock, indicating that deregulation and regulation may move somewhat independently or even inversely, though this

effect is modest and not always distinguishable from zero.

5.4 Interpretation and Comparison to News Shocks

The impulse response patterns documented above bear a resemblance to the effects of technology news shocks identified in the macroeconomic literature. Beaudry and Portier (2006) and Barsky and Sims (2011) show that news about future productivity improvements—which do not materialize immediately but are anticipated by forward-looking agents—generate hump-shaped output responses, strong investment increases, and stock market booms, followed eventually by actual productivity gains. Our deregulation shock exhibits precisely these features: immediate positive responses in forward-looking financial variables and investment, with productivity effects that emerge more gradually and persist over time.

This parallel is not coincidental. Deregulation announcements and implementations convey information about future improvements in the economic environment that may take time to fully materialize. Regulatory reforms often require adjustment periods for firms to reorganize production, for new entrants to appear, and for resources to reallocate toward more productive uses. During this transition, forward-looking agents anticipate these improvements and adjust current decisions accordingly—increasing investment in anticipation of higher future returns, bidding up asset prices to reflect improved fundamentals, and expressing greater confidence about future economic conditions. The eventual productivity gains then validate these expectations as the deregulatory reforms take full effect.

5.5 Distributional Consequences: Profits, Competition, and Prices

A key question in regulatory economics concerns whether deregulation primarily enhances competition and benefits consumers through lower prices, or whether it lowers compliance costs or redistributes rents to incumbent firms thus enabling higher profits. Figure 11 provides evidence on this question by tracking the share of deregulation-related news articles mentioning rising profits, increasing competition, and decreasing prices over the full 1960–2025 sample period.

The figure reveals a striking compositional pattern across all three dimensions. Articles discussing deregulation increasingly emphasize rising profits relative to increasing competition or decreasing prices. Between 1980 and 2025, the share of deregulation news mentioning rising profits rises from approximately 30 to over 50 percent, while the share mentioning increasing competition drops from 60 percent to less than 40 percent. Mentions of decreasing prices decline from approximately 15 percent in the first part of the sample to about 10 percent by 2025.

This pattern provides context for interpreting our macroeconomic results. Our VAR analysis documented that deregulation shocks boost stock prices and corporate profits substantially while productivity gains materialize more slowly and with smaller magnitude. The findings here suggest

a potential explanation: the positive market response likely reflects both anticipated productivity gains from enhanced competition and the immediate reduction of compliance deadweight. The declining share of price-related discourse indicates that modern deregulation is less frequently associated with consumer price benefits compared to earlier reform episodes. While a shift toward profit-centered and away from competition- and price-centered discourse is evident, this may reflect the removal of operational constraints that previously weighed on all firms, rather than a categorical move away from competitive principles.

The compositional shift across decades also aligns with our findings on the changing nature of deregulatory reform (Section 3.4). While earlier reforms (1970s–1980s) primarily dismantled structural entry barriers, contemporary deregulation often targets product and service standards. These measures reduce the cost of compliance, which may yield the largest absolute profit gains for established firms with high-volume operations. However, this trend can also be viewed as a reorientation toward operational efficiency within existing market frameworks.

This interpretation connects to an important strand of literature. Gutiérrez and Philippon (2017) and Philippon (2019) document rising market concentration in the United States, while Klapper, Laeven, and Rajan (2006) show that entry regulation acts as a barrier to entrepreneurship, protecting incumbent firms from competition. Our findings align with recent literature documenting rising market concentration. The rising share of profit-related news over the sample suggests that modern regulatory relief may disproportionately accrue to existing market leaders. Nevertheless, it remains an open question whether these gains stem from reduced barriers to innovation for all firms or a redistribution of rents toward incumbents; both channels are consistent with the observed rise in stock prices following a deregulation shock.

5.6 Robustness

To ensure our results are not driven by specific modeling choices, we conduct several robustness exercises. Figure 10 presents the impulse responses of investment to a one-standard-deviation deregulation shock under alternative specifications. First, we modify the recursive identification by placing deregulation after all slow-moving variables. Second, we restrict the estimation sample to 1980:Q1-2025:Q3. Third, we estimate a smaller VAR including only core macroeconomic aggregates (deregulation, regulation, productivity, investment, consumption, stock prices, and 1-year yield). Fourth, we reduce the number of lags from six to two. Fifth, we estimate the model with Pandemic Priors (Cascaldi-Garcia, 2022) applying a special treatment for the COVID-19 pandemic period (2020:Q1-2020:Q3) through time dummies. Sixth, we use a looser overall prior tightness ($\lambda = 2$ in the Minnesota prior). Across all specifications, the estimated effect is qualitatively similar to our baseline, indicating that our main findings are not artifacts of particular econometric assumptions but reflect robust empirical regularities in the data.

6 Sectoral Deregulation and Industry Returns

This section studies how financial markets respond to sector-specific deregulation using a panel local projection framework. We estimate the dynamic effects of deregulation shocks on monthly returns of the 49 Fama-French industry portfolios, matched to newly constructed sectoral deregulation indexes.[17] The analysis exploits both cross-sectional variation across industries and time-series variation in deregulation intensity, while controlling for aggregate macroeconomic conditions using the Chicago Fed National Activity Index (CFNAI).

The exercise is important for two reasons. First, while deregulation is often argued to affect firm values through profitability, entry, and compliance costs, direct evidence on the *timing* and *dynamics* of market responses remains limited. Second, deregulation is inherently a multi-stage process: expectations are formed when policy changes are discussed or announced, and economic agents incorporate this information into asset prices, with further adjustments that may occur as regulations progress through formal enactment and implementation. By combining sector-level deregulation measures with industry portfolio returns in a panel local projection setting, we are able to trace out the dynamic response of financial markets to deregulation shocks.

6.1 Empirical Specification

We estimate panel local projections following Jordà (2005), where industry returns at horizon h are regressed on contemporaneous deregulation shocks, their lags, lagged returns, and macroeconomic controls. The estimating equation is given by

$$R_{i,t+h} = \alpha_i + \beta_h \, \text{Dereg}_{i,t} + \sum_{k=1}^{K} \gamma_{h,k} \, \text{Dereg}_{i,t-k} + \sum_{k=1}^{K} \delta_{h,k} \, R_{i,t-k} + \sum_{k=0}^{K} \phi_{h,k} \, X_{t-k} + \varepsilon_{i,t+h}, \qquad (2)$$

where $R_{i,t+h}$ denotes the monthly return (in percentage points) of industry i at horizon h months ahead, $\text{Dereg}_{i,t}$ is the sectoral deregulation index matched to industry i, and X_t denotes aggregate macroeconomic controls, including the CFNAI. The specification includes industry fixed effects α_i, the number of lags K is set to six, and standard errors are clustered at the industry level.

Impulse response functions (IRFs) are constructed by estimating equation (2) separately for horizons $h = 0, 1, \ldots, H$ and scaling the estimated coefficients by the standard deviation of the deregulation index. This approach allows for flexible dynamics without imposing parametric restrictions on the propagation of deregulation shocks.

[17] The mapping between sectoral deregulation indexes and the Fama–French 49 industry portfolios is reported in Table A.3 in the Appendix. Each sectoral index maps to multiple industry portfolios, resulting in 49 industry-level observations per month.

6.2 Impulse Response Results

Figure 12 reports the impulse response of industry returns to a one-standard-deviation increase in the sectoral deregulation index. The response is positive and significant on impact, and persists positive even one month after the shock, before converging back to zero. This result indicates that shocks to our newspaper-based sector measures indeed convey important information about deregulation efforts, which are evaluated positively by economic agents.

The positive market response to deregulation is consistent with several economic channels. First, deregulation may signal higher expected profitability through reduced compliance costs and administrative burdens, allowing firms to redirect resources toward productive activities. Second, by lowering entry barriers and reducing barriers to competition, deregulation can enhance market efficiency and signal improved growth prospects for the sector. Third, the removal of regulatory constraints may increase operational flexibility, enabling firms to respond more effectively to market opportunities. The contemporaneous response suggests that investors quickly incorporate deregulation news into asset prices, while the delayed response at eight months captures the revaluation of firms as formal regulatory changes are implemented and their economic effects become more likely.

6.3 Impact Results and Robustness Exercises

Table 2 reports the results on impact ($h = 0$) of our baseline setup (column 1) and a range of robustness checks (columns 2 to 7).[18] We vary the set of macroeconomic controls individually (Chicago Fed National Activity Index in column 2, National Financial Conditions Index in column 3, and industrial production in column 4) and jointly (all three controls in column 5), include time fixed effects (column 6), use first-differenced deregulation indexes (column 7), and change the clustering structure of standard errors, including two-way clustering by industry and time (column 8). Across all specifications, the estimated effect of deregulation on industry returns remains positive and economically meaningful, ranging on impact from 0.1 to 0.4 percentage points after a one standard deviation deregulation shock, indicating that the results are not driven by a particular control variable, sample period, or inference procedure. Moreover, in a placebo exercise, we find that past values of industry returns do not respond to deregulation shocks.

7 Comparison with Existing Measures

Using newspapers to construct macroeconomic indicators follows a tradition established by Baker, Bloom, and Davis (2016) in measuring economic policy uncertainty. We build on this tradition by applying large language models to extract semantic content rather than simple keyword counts,

[18] A detailed description of the data sources and variable construction is provided in Table A.5 in the Appendix.

an approach similar in spirit to recent work by Clayton, Coppola, Maggiori, and Schreger (2025) measuring geoeconomic pressures from firms earnings calls.

Among regulation-specific measures, our approach differs in important ways from existing measures. Kalmenovitz (2023) constructs firm-specific regulatory burden by matching firms' 10-K filings to Federal Register regulations and aggregating official compliance cost estimates, while Calomiris, Mamaysky, and Yang (2020) analyze earnings call transcripts to measure firm-level regulatory discussions. These approaches provide granular, firm-specific measures at quarterly frequency, while our index captures economy-wide regulatory trends at daily frequency going all the way back to 1960. Our decompositions by sector and type can complement these firm-level analyses to study heterogeneous approaches and responses to regulatory reforms.

Alternative economy-wide measures do not provide a timely or aggregate deregulation measure which is the main goal of our exercise. The QuantGov platform[19] uses machine learning to count regulatory "restrictions" —binding constraints marked by words such as "shall" or "must"—in the Code of Federal Regulations but does so with a lag and does not weigh regulations by their economic or news-weighted significance. Our validation against Federal Register rules demonstrates that semantic classification of news text captures regulatory intensity more effectively: our aggregate deregulation news index leads the Federal Register deregulation index by eleven months, suggesting that our measure captures policy intentions before formal implementation. The strong correlation between our news-based and Federal Register indexes validates both approaches while highlighting their complementarity. The news index's advantage for understanding economic behavior is its timeliness—it captures forward-looking expectations of regulatory change before they materialize in formal policy, which is crucial for explaining financial market and investment responses.[20]

8 Conclusions

This paper makes several contributions to measuring deregulation and quantifying its effects.

First, we introduce a novel measurement approach. We construct a daily news-based deregulation index spanning 1960–2025 using large language models to classify newspaper articles. Our approach captures both the intensity and direction of regulatory change. We extend this methodology to classify deregulation by sector, by type (price controls, entry barriers, product standards), by policy stage (advocacy, proposals, enactment), and by country or region. An independent Federal Register-based index corroborates the news measure while revealing that news coverage leads formal rule publication by eleven months—capturing forward-looking policy expectations crucial for understanding economic responses.

[19] See https://www.quantgov.org/.

[20] The OECD Product Market Regulation index (Conway and Nicoletti, 2006) relies on statute coding and is not available at frequencies amenable for time-series analysis.

Second, we document the evolution of U.S. deregulation over six decades. The index reveals distinct reform episodes: transportation and telecommunications liberalization in the 1970s–1980s, financial deregulation through the 1990s, and recent broad-based activity. Importantly, the composition of deregulation has shifted. The 1970s focused on removing price controls that distorted resource allocation. From the 1980s onward, the dominant type has been product and service deregulation—changes to quality standards, disclosure requirements, and safety specifications—with entry barrier removal playing a consistently secondary role. Recent decades have also seen a growing share of diffuse regulatory debates that do not fit traditional economic categories. This compositional pattern suggests that much of U.S. deregulation operates through compliance cost reduction within existing market structures, rather than through the market-restructuring entry reforms often emphasized in theoretical models.

Third, we provide evidence on the macroeconomic effects of deregulation. VAR analysis reveals that deregulation shocks boost GDP, productivity, investment, employment, stock prices, and corporate profits, while reducing price levels and economic uncertainty. The pattern of responses resembles technology news shocks: immediate reactions in forward-looking financial variables, followed by gradual productivity gains. Panel local projections matching sectoral deregulation indexes to industry stock returns reveal positive, statistically significant effects.

Last, we document patterns suggesting the economic channels of recent deregulation may emphasize corporate profitability rather than just market competition. From 1980 onward, deregulation-related news articles increasingly emphasize rising profits relative to increasing competition or decreasing prices. Notably, mentions of price reductions—a direct indicator of consumer benefits—decline from 10 percent of deregulation articles in the early 1980s to near zero by 2025. This evidence suggests that contemporary deregulation may primarily impact established firms through compliance cost reduction rather than generating the competitive price effects associated with earlier market-opening reforms, potentially affecting the distribution of gains relative to the entry-enabling reforms of the past.

The historical difficulty of quantifying the regulatory climate has often left economists relying on proxies that are either too slow to capture market expectations or too narrow to reflect the entire economy. News-based measures of deregulation are powerful high-frequency signals that can not only foretell formal policy changes but also explain movements in macroeconomic and financial variables.

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Table 1: Distribution of Deregulation Types by Decade

	1960s	1970s	1980s	1990s	2000s	2010s	2020s
Entry & Exit	19.4	20.3	19.4	21.8	19.7	18.8	19.7
Price	20.5	31.0	16.9	11.8	10.5	5.5	6.3
Product & Service	23.9	21.1	30.8	29.9	32.6	35.4	34.9
Geographic	24.7	15.1	16.6	20.5	20.1	15.5	11.9
Labor	4.0	3.5	5.0	4.5	4.9	5.8	6.2
Other	7.4	8.9	11.2	11.5	12.2	19.0	21.0

Note: Table shows the percentage distribution of deregulation types within each decade, based on AI classification of the articles discussing deregulation from 1960—2025.

Table 2: Panel Regressions: Industry Returns on Deregulation

	Dependent Variable: Industry Returns						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Main Variables							
Deregulation	0.41	0.35	0.33	0.34	0.09	0.36	0.41
	(0.06)	(0.05)	(0.05)	(0.06)	(0.04)	(0.05)	(0.11)
Deregulation $_{t-1}$	−0.01	0.01	−0.04	0.02	−0.12	0.32	−0.01
	(0.04)	(0.04)	(0.05)	(0.04)	(0.05)	(0.06)	(0.11)
Return $_{t-1}$	0.13	0.00	0.24	0.01	0.26	0.13	0.13
	(0.04)	(0.01)	(0.02)	(0.01)	(0.02)	(0.04)	(0.05)
Controls							
CFNAI	−0.20			0.15		−0.20	−0.20
	(0.11)			(0.08)		(0.11)	(0.34)
NFCI		−12.60		−12.45			
		(0.43)		(0.45)			
Industrial			−51.63	−24.01			
Production			(4.34)	(7.66)			
Entity FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	No	No	No	No	Yes	No	No
Lagged controls	Yes	Yes	Yes	Yes	No	Yes	Yes
Clustering	Industry	Industry	Industry	Industry	Industry	Industry	Two-way
Sample period	1967–2025	1971–2025	1960–2025	1971–2025	1960–2025	1967–2025	1967–2025
Observations	34,251	31,997	38,465	31,997	38,465	34,251	34,251
Industries	49	49	49	49	49	49	49
R^2	0.07	0.09	0.56	0.10	0.70	0.07	0.07

Note: This table reports coefficients from panel local projections at horizon $h = 0$ (contemporaneous effects) estimated using monthly data. Standard errors in parentheses are clustered by industry in columns (1)–(6) and by industry and time in column (7). The dependent variable is industry portfolio returns. Deregulation measures are standardized (z-score normalized) prior to estimation. Coefficients for deregulation variables are scaled to show the effect of a one standard deviation shock, where the standard deviation is computed from the estimation sample (after creating lags and balancing the panel). All specifications include six lags of returns and deregulation. Column (1) uses CFNAI as the control; column (2) uses NFCI; column (3) uses log-differenced industrial production; column (4) includes all three controls; column (5) includes time fixed effects with no additional controls; column (6) uses first-differenced deregulation indexes; column (7) uses two-way clustering (industry and time) with CFNAI control. Lagged controls are included in columns (1)–(4) and (6)–(7). The sample is a balanced panel of 49 industry portfolios matched to sectoral deregulation indexes. Industry fixed effects are included in all specifications.

Figure 1: Deregulation Classification Prompt

```
DEFINITION OF DEREGULATION:
Deregulation is the reduction, elimination, or simplification of government regulations. It
includes:
• Removing/modifying rules, reducing oversight, eliminating barriers to entry or exit,
  streamlining compliance procedures, or reducing reporting requirements
• Actual measures: bills, laws, executive orders by cities, states, Congress, or administrative
  agencies; sunset provisions; exemptions; or reduced enforcement
• Advocacy: CEOs, business leaders, groups, experts calling for deregulation

ECONOMIC FOCUS:
This index measures ECONOMIC deregulation. Prioritize articles about: financial regulation,
environmental rules affecting business, labor market regulation, trade barriers, licensing
requirements, energy regulation, telecom/tech regulation, healthcare regulation affecting
industry, zoning/land use, and business compliance burdens. CRITICAL DISTINCTION:

• DEREGULATION = LESS government power, LESS oversight, FEWER restrictions
• MORE REGULATION = MORE government power, MORE oversight, MORE restrictions

WHAT IS NOT DEREGULATION:
• Tax cuts or changes to tax rates are NOT deregulation
• Fiscal policy (spending, subsidies, tariffs) is NOT deregulation unless it also removes
  regulatory requirements
• Social policy with little economic impact (criminal justice reform, gender-related laws, DEI
  policy, education curriculum changes) should be scored 0.0

TRADE LIBERALIZATION:
When the U.S. and a foreign country agree to reduce economic and trade barriers (tariffs, quotas,
regulatory harmonization), score BOTH U.S. Overall AND Foreign, since both sides are deregulating.
Unilateral foreign trade liberalization = Foreign only. Unilateral U.S. trade liberalization =
U.S. Overall only. THE TWO INDEXES:

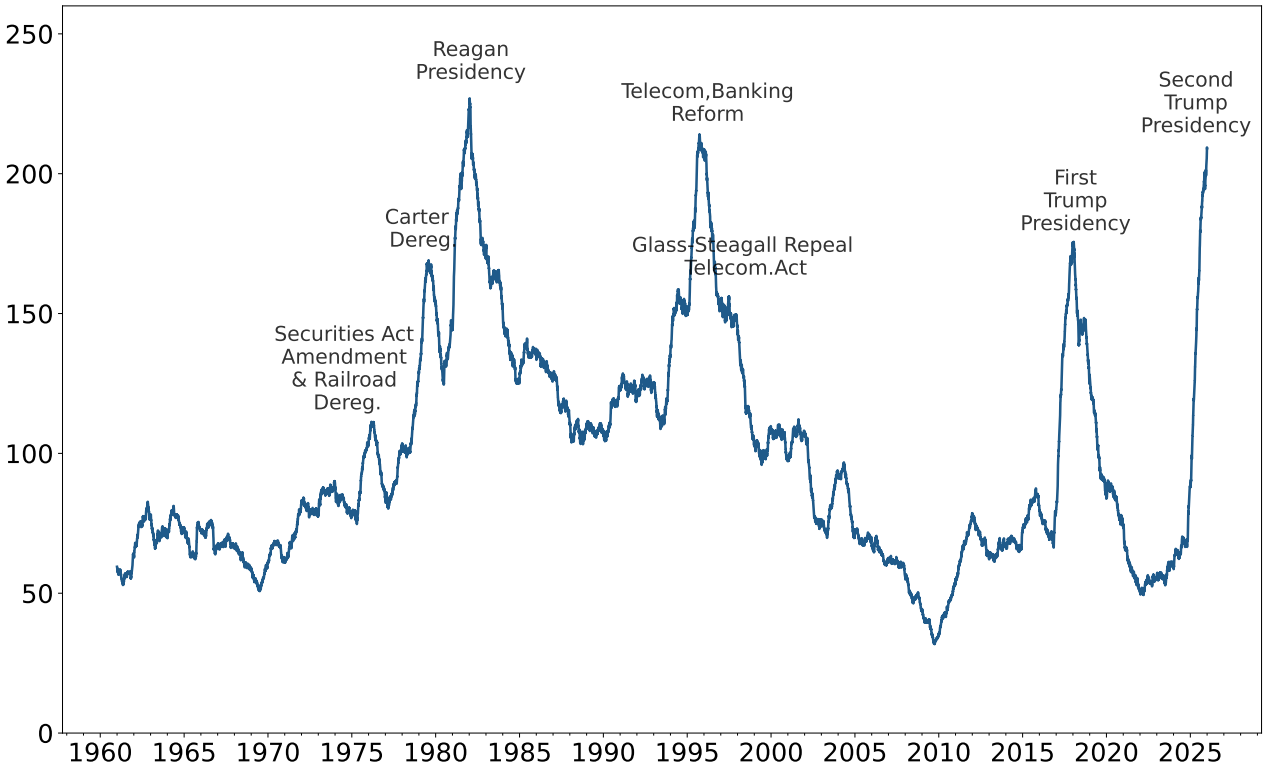
1. U.S. OVERALL: Deregulation affecting U.S. entities across ALL economic sectors
2. FOREIGN: Deregulation affecting foreign countries or international contexts

SCORE SCALE --- USE ONLY: 0.0, 0.2, 0.4, 0.6, 0.8, 1.0
• 0.0: Pro-regulation OR PAST deregulation OR more regulation OR no deregulation discussed
• 0.2: Single brief mention or passing reference to deregulation
• 0.4: 1--2 sentences discussing deregulation; brief but clear mention
• 0.6: Multiple sentences/paragraphs; advocacy by CEOs/groups; state/local proposals
• 0.8: Substantial article focus on deregulation; federal proposals or state laws enacted
• 1.0: Major article focus; federal laws enacted or comprehensive deregulation coverage

CRITICAL RULES:
1. Pro-regulation articles = 0.0
2. Articles mentioning PAST deregulatory EVENTS (many years ago or more) = 0.0
3. Social policy without clear economic regulatory implications = 0.0
4. Bilateral trade liberalization = score BOTH indexes
```

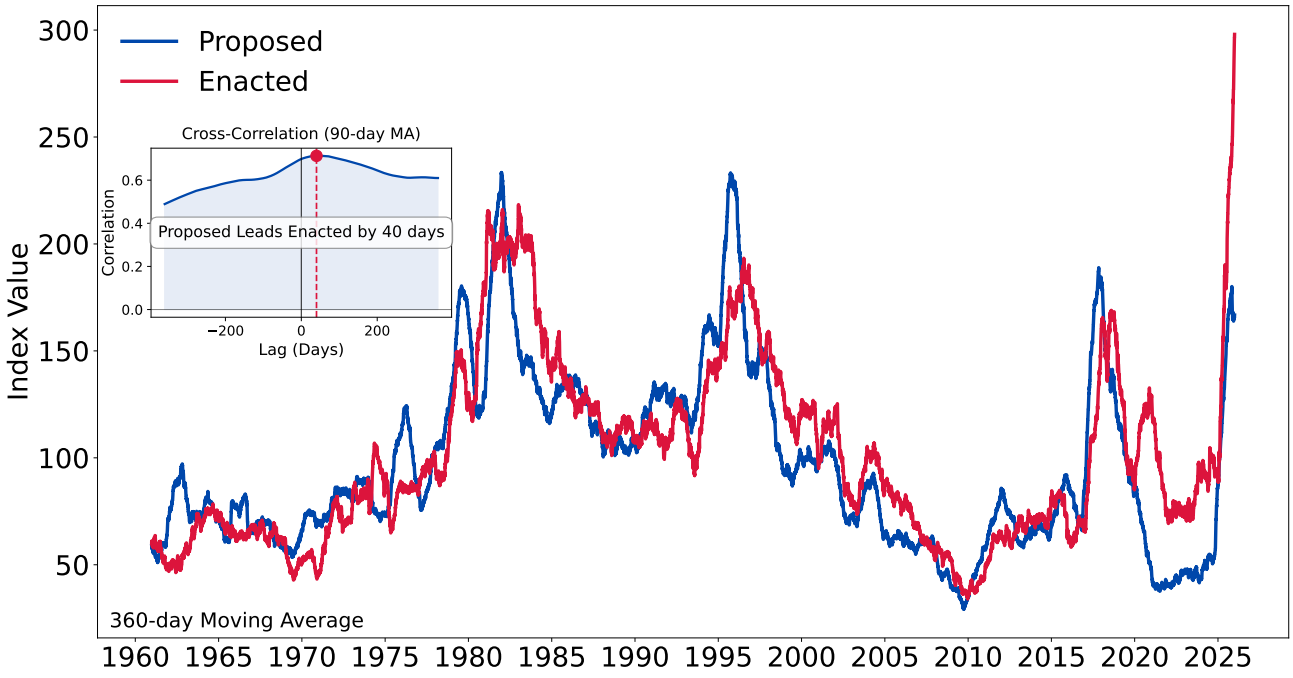
Note: This figure shows the core prompt structure to calculate the deregulation index in the paper. The complete prompt used in classification also includes multiple examples. For instance, examples include: "Senator Proposes Looser Regulation of Airlines" (scored as 0.6 for proposed deregulation), "President signs telecommunications deregulation into law" (scored as 1.0 for enacted deregulation), "EPA eliminates emissions standards" (scored as 1.0 for enacted federal deregulation), and "History: Deregulation happened in 1980s" (scored as 0.0 for past events not current policy).

Figure 2: The U.S. Economic Deregulation Index (1960–2025)



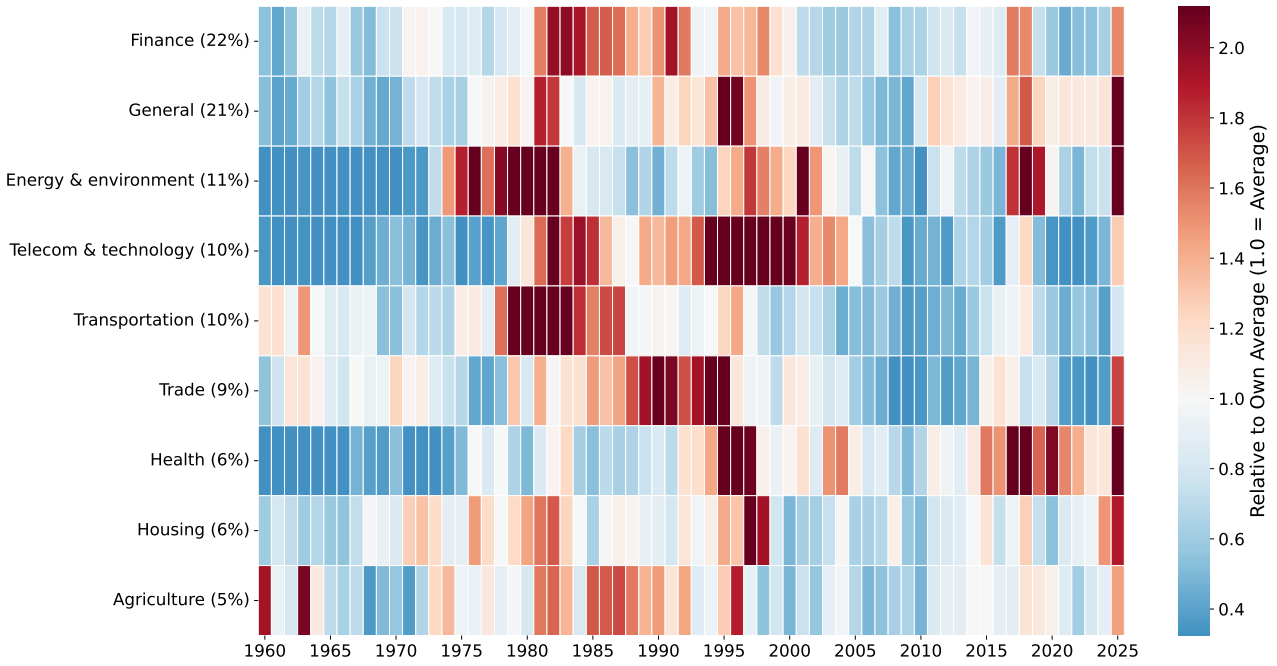
Note: The U.S. Deregulation Index, constructed by applying large language models to classify newspaper articles using ProQuest Global Newsstream Collection, ProQuest Historical Newspapers, and the textual analytics tools of ProQuest TDM Studio. Series shows 365-day moving average of daily values, indexed to mean 100 in 1960-2019. Labels identify major deregulation episodes. Higher values indicate more intense deregulation activity as measured by news coverage.

Figure 3: Proposed vs. Enacted Deregulation



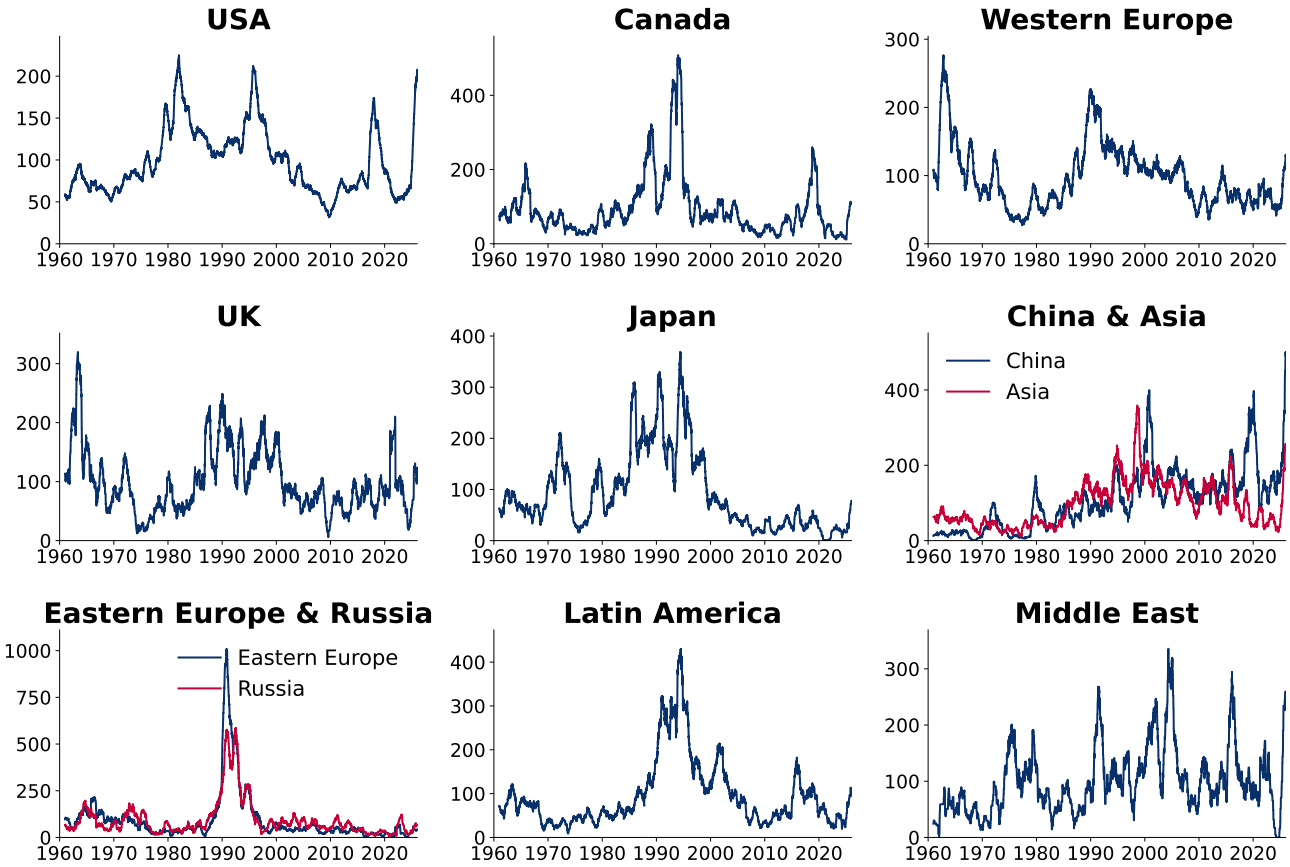
Note: Total deregulation index broken down into two indexes, measuring respectively Proposed and Enacted Deregulatory Measures. Both indexes equal 100 in the 1960-2019 period. The cross-correlogram is calculated on the series smoothed using a 90-day moving average.

Figure 4: Deregulation Index by Industry: Relative Intensity



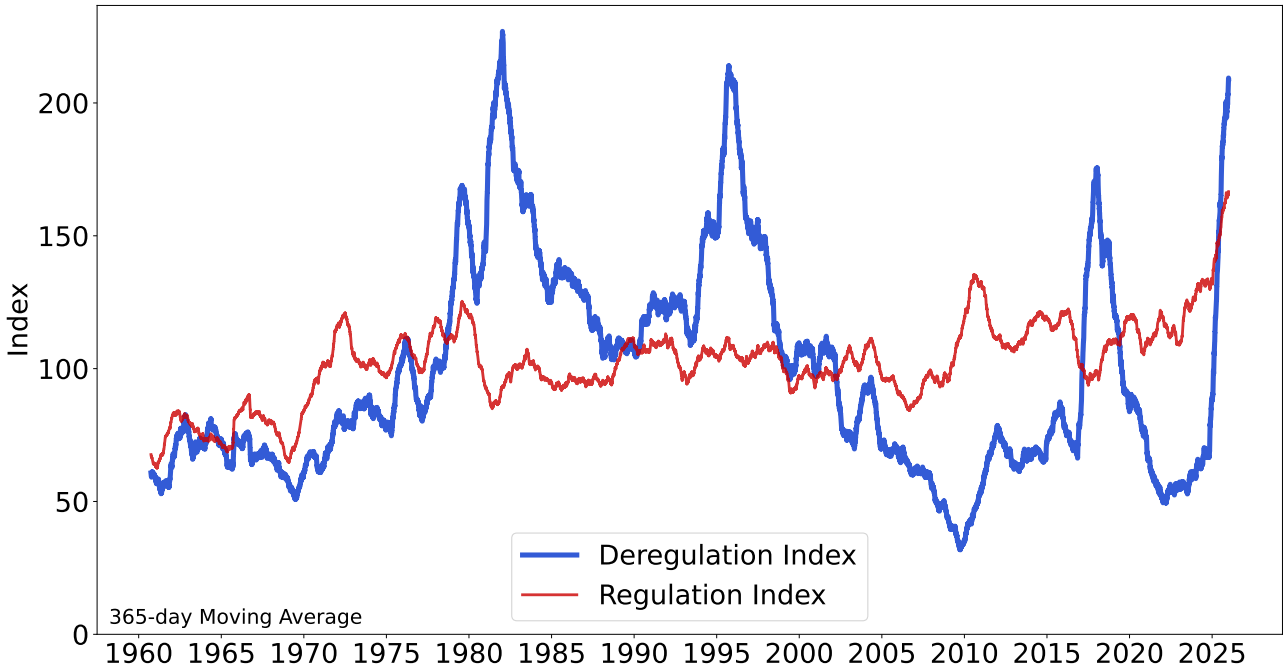
Note: Heatmap showing deregulation intensity by sector over time, with each row normalized by that sector's historical average (white = average intensity, red = above average, blue = below average). Values above 1.0 indicate periods when a sector experienced more deregulation coverage than its historical norm. Based on LLM classification of newspaper articles.

Figure 5: U.S. vs. Foreign Deregulation Indexes



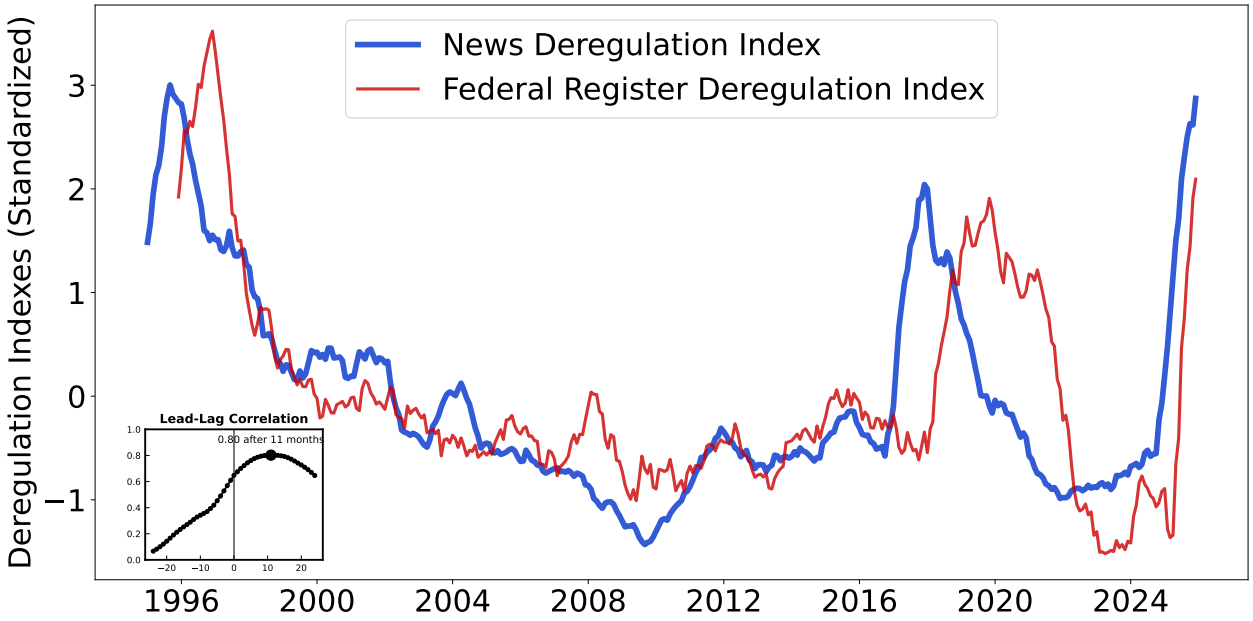
Note: Deregulation indexes by country and region, each indexed to mean 100 in 1960-2019 (levels not comparable across regions). Series show 365-day moving averages. Based on LLM classification of newspaper articles.

Figure 6: Deregulation Index vs. Regulation Index



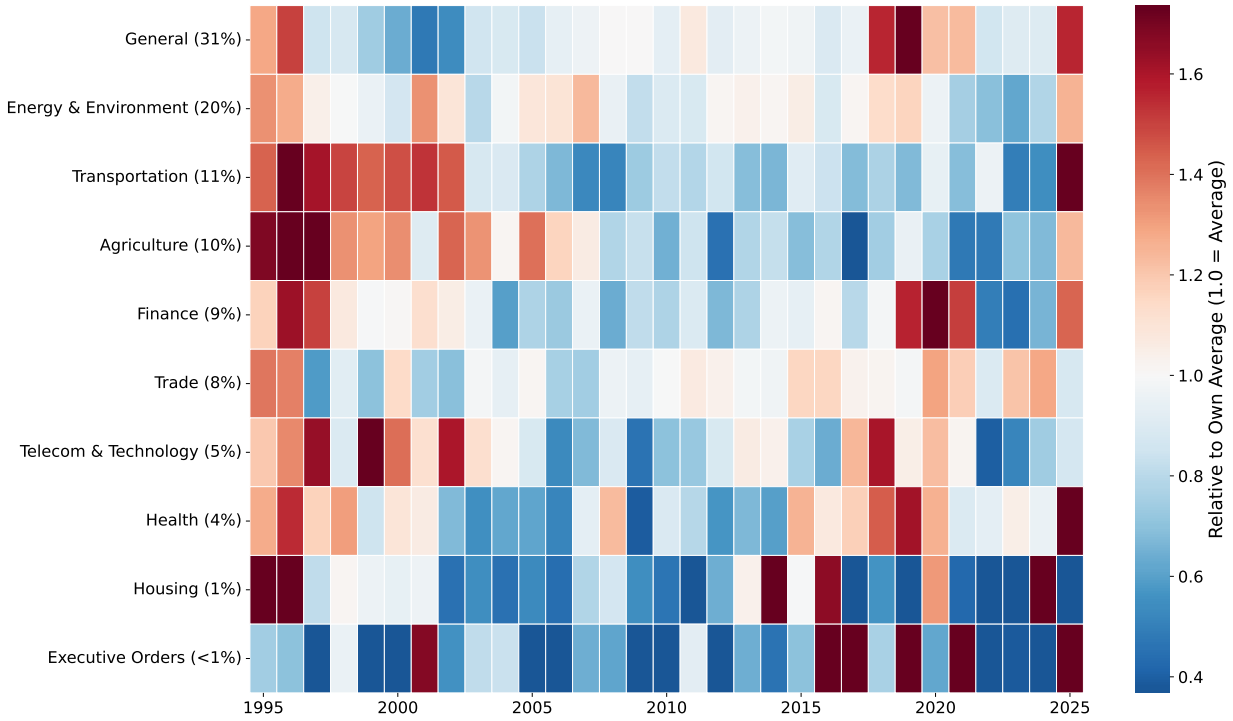
Note: The figure shows the Deregulation Index (blue) together with the Regulation Index (red) that captures articles discussing increased regulation. Series show 365-day moving averages. Both indexes are constructed using LLM classification methods applied to newspaper articles and are indexed to mean = 100 over 1960–2019.

Figure 7: News and Federal Register Deregulation indexes, 12-Month Moving Averages



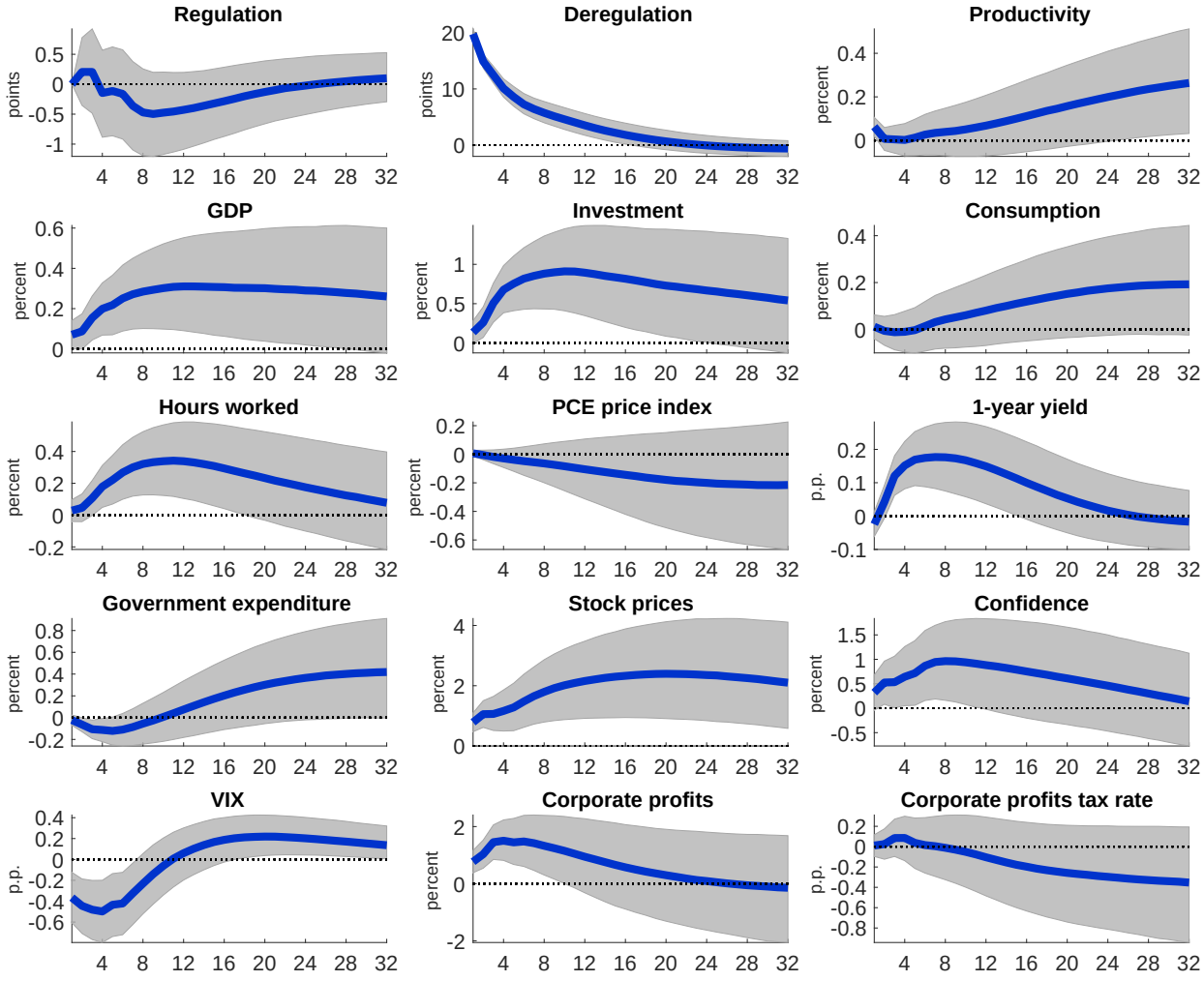
Note: Both series indexed to mean = 100 over 1995–2019, standardized. The News Deregulation Index is constructed from newspaper articles. The Federal Register Deregulation Index sums AI-classified deregulation scores of rules and executive orders, normalized by total documents published, with 12-month moving average applied. The inset shows lead-lag correlations, with the maximum correlation (0.80) occurring when the news index leads by 11 months.

Figure 8: Deregulation Index Heatmap by Agency Group



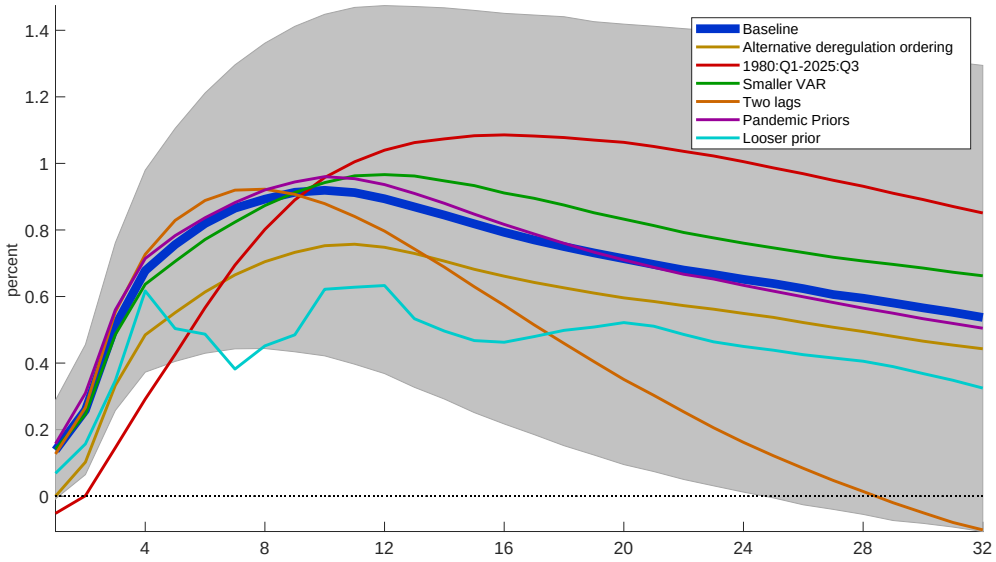
Note: The heatmap displays monthly deregulation intensity for each agency group, expressed relative to that group's own historical average over 1995–2025. Values are computed by summing AI-classified deregulation scores for all Federal Register rules and executive orders issued by agencies in each group, normalized by the total number of documents, then dividing by the group's sample mean. A value of 1.0 (white) indicates activity equal to the group's historical average; values above 1.0 (red shades) indicate above-average deregulatory intensity; values below 1.0 (blue shades) indicate below-average intensity. Percentages in parentheses show each group's average share of total Federal Register deregulation over the full sample. Complete agency group definitions are provided in Appendix Table A.2.

Figure 9: Macroeconomic Effects of a Deregulation Shock: Impulse Responses



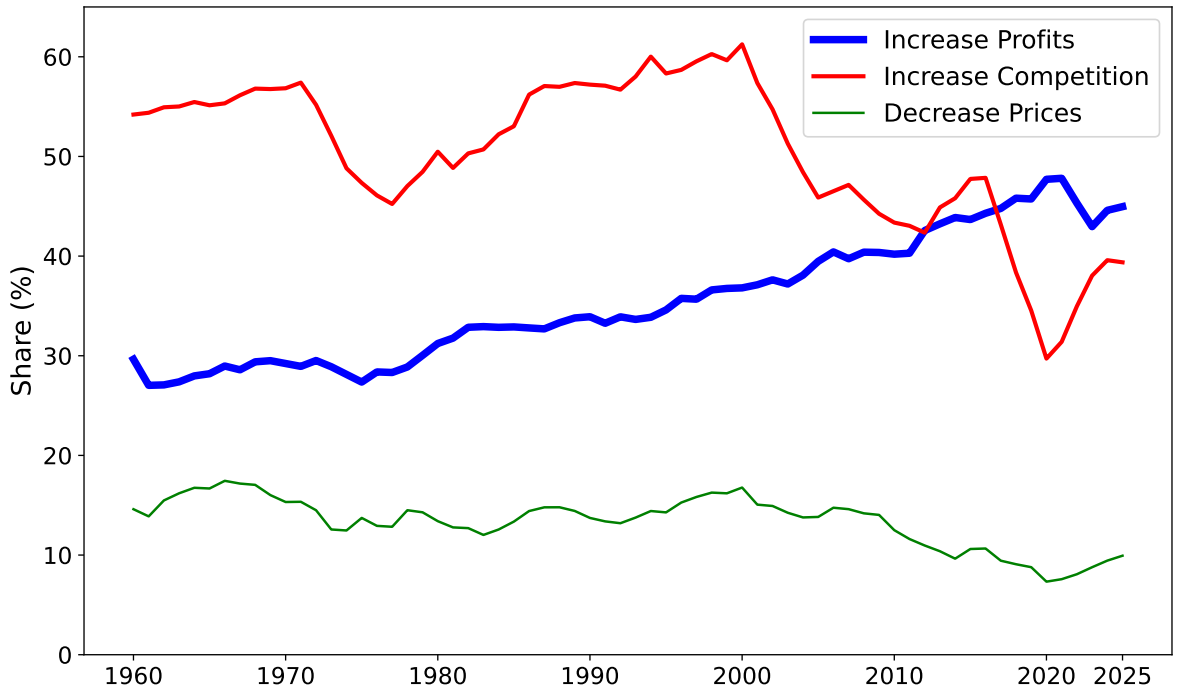
Note: The figure displays impulse responses to a one-standard-deviation deregulation shock identified using recursive (Cholesky) ordering with deregulation ordered after regulation. Solid lines show posterior medians and shaded areas represent 68% posterior credible intervals based on 10,000 draws from the posterior distribution. The VAR includes 15 variables with 6 lags and is estimated over 1962:Q3-2025:Q3 using the Minnesota prior. Responses for real variables (productivity, GDP, investment, consumption, hours, government expenditure, stock prices, confidence, corporate profits) are expressed as percent deviations from baseline. Responses for the regulation and deregulation indexes are in index points. Responses for yields, the VIX, and the (cumulative) corporate profits tax rate are in percentage points. The horizontal axis measures quarters after the shock.

Figure 10: Robustness: Investment Responses to Deregulation Shock



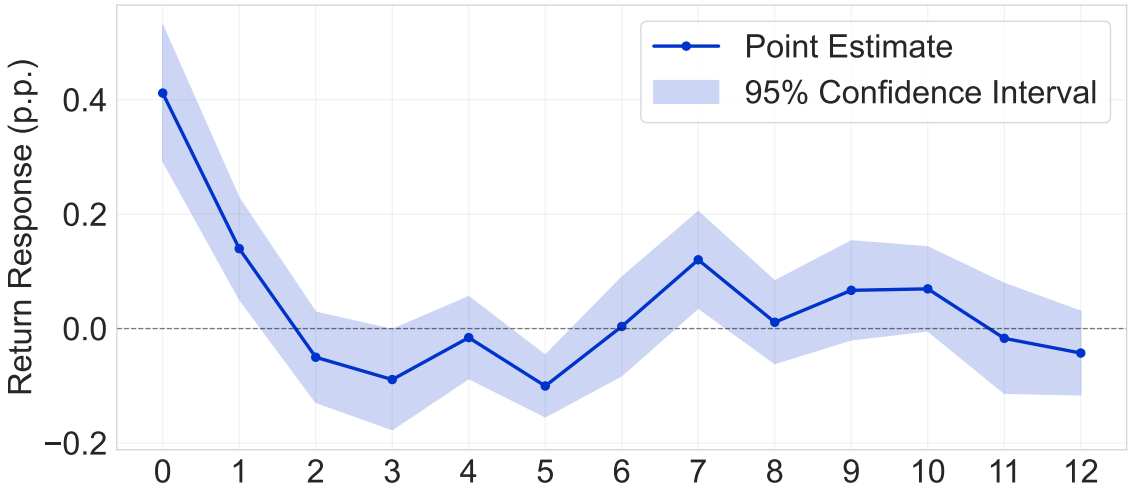
Note: The figure displays impulse responses of investment to a one-standard-deviation deregulation shock under alternative model specifications. The baseline uses a 15-variable VAR with 6 lags, recursive identification with deregulation ordered after regulation, Minnesota prior, and sample period 1962:Q3-2025:Q3. Alternative specifications modify one dimension at a time: "Alternative deregulation ordering" places deregulation after all slow-moving variables; "1980:Q1-2025:Q3" restricts the sample to the post-1980 period; "Smaller VAR" includes only seven core macroeconomic variables; "Two lags" reduces lag length from six to two quarters; "Pandemic Priors" estimates the model with pandemic-specific time dummies (Cascaldi-Garcia, 2022) from 2020:Q1 to 2020:Q3; "Looser prior" increases the overall prior tightness to $\lambda = 2$. All responses are expressed as percent deviations from baseline. The horizontal axis measures quarters after the shock.

Figure 11: Deregulation Effects Over Time: Profits, Competition, and Prices



Note: The figure displays the share of deregulation-related news articles mentioning increasing profits, increasing competition, and decreasing prices as a percentage of all deregulation-related articles, 1960–2025. Each line represents the share of articles as a 5-year moving average.

Figure 12: Impulse Response of Industry Stock Returns to a Deregulation Shock



Note: The figure reports impulse response functions from panel local projections of Fama–French 49 industry portfolio returns on sectoral deregulation indexes. The response is scaled to a one-standard-deviation increase in the deregulation index. Shaded areas denote 95% confidence intervals based on industry-clustered standard errors. All specifications include industry fixed effects, six lags of returns and deregulation, and the CFNAI as a macroeconomic control.

Appendix

A Index Construction and Classification Methodology

This appendix provides complete technical details on how the deregulation and regulation indexes were constructed. Section 2 in the main text describes the classification methodology at a high level; here we present the full prompt text including scoring scales, examples, and decision rules used to classify newspaper articles and Federal Register documents.

News-Based Index Classification. The news-based deregulation index relies on large language model classification of newspaper articles mentioning regulatory terms. Figure A.1 reproduces the complete prompt used to classify articles for deregulation content. The prompt defines deregulation as "the reduction or elimination of government regulations," provides explicit guidance distinguishing deregulation from increased regulation, and establishes a six-point intensity scale (0.0, 0.2, 0.4, 0.6, 0.8, 1.0) calibrated to reflect both the article's focus on deregulation and whether the deregulation discussed represents advocacy, proposals, or enacted measures. The actual implementation includes multiple examples (not shown) to calibrate the model's scoring behavior.

The regulation index uses a parallel prompt with reversed polarity, shown in Figure A.2. The structure mirrors the deregulation prompt but assigns high scores to articles discussing increased regulation rather than deregulation. This symmetric approach ensures that the distinction between regulation and deregulation is consistently applied across the classification process.

Federal Register Classification. The Federal Register-based deregulation index applies similar classification logic to administrative documents rather than newspaper articles. Figure A.3 presents the prompt used to classify Federal Register rules. The scoring scale emphasizes both the depth of regulatory relief (how much burden is reduced) and breadth (how many entities or sectors are affected). Rules that merely grant individual exemptions or make minor administrative simplifications receive a score of 0.2, while comprehensive rescission of major regulations receives 1.0.

Executive orders require a distinct prompt because they differ structurally from agency rules. Figure A.4 shows the executive order classification prompt. While the scoring scale remains identical to the rule prompt, the calibration examples reflect the distinctive nature of presidential directives, which often establish government-wide mandates or direct agencies to undertake deregulatory reviews rather than directly rescinding specific rules.

Agency Classification. Federal Register documents are classified by issuing agency and grouped into broad categories for analysis. Table A.2 provides complete definitions of the ten agency groups used in Section 4. The classification follows Federal Register conventions, assigning each rule or executive order to a single group based on the issuing agency listed in the document metadata. Some agencies were reorganized or renamed during the 1995–2025 sample period; we maintain consistent classification by tracking agency succession and using the Federal Register's own agency identification system.

B Validation and Robustness Checks

This appendix presents evidence on the reliability and robustness of the deregulation index. We validate the AI classification against human coding and alternative AI models, demonstrate robustness

to alternative news sources and smoothing parameters, and document the Federal Register-based index that corroborates our news-based measure.

Human and AI Validation. A critical question for any AI-based classification is whether the model's judgments align with human interpretation. We sampled 500 articles from the full corpus and obtained independent classifications from seven research assistants, yielding 455 articles with completed human scores. Figure A.5 plots GPT-4o-mini scores against average human scores in a binned scatterplot. The strong positive relationship confirms that the AI captures the same content dimensions that human coders perceive. The correlation between GPT-4o-mini and average human scores (r=0.69) is substantial and approaches the pooled inter-human correlation of 0.72.

Table A.1 reports validation statistics for all models tested. Panel A shows correlations between average human scores and three AI models. GPT-5 achieves the highest correlation (0.72), followed by GPT-5-mini (0.71) and GPT-4o-mini (0.69). Despite GPT-5's stronger performance, we selected GPT-4o-mini for the full corpus classification. The difference in human correlation is modest (0.03), while GPT-4o-mini processes articles roughly three times faster than GPT-5—at approximately one article per second—and costs roughly one-tenth as much. For classifying 700,000+ articles, these advantages prove decisive.

Panel B reports inter-human reliability statistics. The pooled correlation of 0.72 across all overlapping article pairs establishes the benchmark for expected agreement. Pairwise correlations between individual human coders average 0.77, with a median of 0.87. This variation reflects inherent ambiguity in borderline cases where articles mention deregulation tangentially or discuss historical episodes rather than current policy debates. That GPT-4o-mini's correlation with human scores (r=0.69) approaches the inter-human benchmark (r=0.72) indicates that AI classification reliability is comparable to agreement between trained human coders.

Inter-AI correlations (not reported in the table) range from 0.54 to 0.81, with models within the same family (e.g., GPT-5 and GPT-5-mini) exhibiting the highest agreement (0.81). This variation suggests different models capture somewhat different aspects of deregulation language, reinforcing the value of model-specific prompt optimization rather than assuming one-size-fits-all approaches transfer across architectures.

Table A.1: Human and AI Validation Results

Model/Comparison	Correlation	N
Panel A: Human vs AI Correlations		
GPT-5	0.724	455
GPT-5-mini	0.711	455
GPT-4o-mini†	0.687	455
Panel B: Inter-Human Reliability		
Pooled inter-human correlation	0.719	21 pairs
Mean pairwise correlation	0.771	
Median pairwise correlation	0.870	

Notes: Panel A reports correlations between average human scores and various AI models. † indicates the benchmark model used for the full corpus classification (700,000+ articles). Panel B reports inter-human reliability statistics. Human validation based on 7 independent research assistants. Pooled correlation calculated across all overlapping article pairs between human scorers.

Alternative News Sources. The main index uses New York Times articles because the Times provides the longest consistent coverage spanning 1960–2025. However, reliance on a single newspaper raises the concern that editorial decisions or geographic focus might introduce bias. To address this, we constructed parallel deregulation indexes using articles from the Washington Post and Chicago Tribune, applying identical classification procedures. Figure A.6 compares the three indexes. The high correlation across sources (correlations exceed 0.90) confirms that the index captures genuine variation in deregulatory activity rather than idiosyncrasies of New York Times coverage. All three indexes peak during the same reform episodes: late 1970s deregulation, Reagan-era reforms, mid-1990s telecommunications and financial liberalization, and the Trump administrations.

Alternative Smoothing Windows. The main text presents the deregulation index as a 365-day moving average to remove high-frequency noise while preserving medium-term trends. Figure A.7 displays the index using both 30-day and 365-day moving averages. Both specifications identify the same major episodes, confirming that the choice of smoothing window affects the noise level but not the fundamental patterns in the data.

Federal Register Evidence. The Federal Register provides an independent validation check based on administrative documents rather than news coverage. Figure A.8 shows the total number of Federal Register documents (rules and executive orders) published per month from 1995 to 2025. The secular decline from approximately 400 documents per month in the mid-1990s to 250–300 in recent years reflects a shift toward fewer but larger rules, as documented by Febrizio (2021). This trend reinforces the importance of content-based classification rather than simple document counts: the declining volume of rules would mechanically suggest declining regulatory activity, yet our news-based deregulation index (which weighs by content) reveals substantial deregulatory activity during periods with fewer total rules.

Figure A.9 presents the Federal Register Deregulation Index at monthly frequency. The index aggregates AI-classified deregulation scores, normalized by the total number of documents published each day, then indexed to mean 100 over 1995–2019. The raw monthly series exhibits substantial volatility, with sharp spikes corresponding to major deregulatory actions such as the Congressional Review Act rescissions in 2017 and executive orders in early 2025. The 365-day moving average reveals underlying trends: elevated deregulation in the mid-1990s during telecommunications reform, a trough during the mid-2000s, a sharp peak during 2017–2018 in the first Trump administration, and very high levels beginning in late 2024. As documented in Section 4, this Federal Register index correlates strongly with the news-based index, with the news index leading by eleven months—consistent with news coverage capturing policy intentions before formal rule-making processes conclude.

C Data Definitions and Variable Construction

This appendix provides detailed definitions of all variables used in the empirical analysis, enabling replication and clarifying measurement conventions.

Macroeconomic Analysis Variables. Table A.4 describes the 15 variables used in the vector autoregression analysis of Section 5. The regulation and deregulation indexes are the news-based measures constructed from New York Times articles as described in Sections 2–4. Macroeconomic variables follow standard definitions from the Federal Reserve Economic Data (FRED) database. Real variables (GDP, investment, consumption, government expenditure) are expressed

in per capita terms using civilian noninstitutional population aged 16 and over, and deflated using the GDP deflator. Productivity is utilization-adjusted total factor productivity from Fernald (2014). Financial variables include the S&P 500 stock index, the VIX volatility index, and the 1-year Treasury yield. All variables are quarterly, covering 1962:Q3–2025:Q3. Monthly series are converted to quarterly frequency by averaging within each quarter.

Panel Analysis Variables. Table A.5 describes variables used in the industry-level panel analysis of Section 6. The sectoral deregulation indexes are constructed from Federal Register documents using the methodology described in Section 3.4, with each index measuring deregulation intensity for a specific sector (finance, energy, telecommunications, transportation, health, housing, trade, agriculture). Industry portfolio returns are monthly value-weighted returns for the Fama–French 49 industry portfolios, obtained from Kenneth French's data library. Control variables include the Chicago Fed National Activity Index (CFNAI), a composite measure of macroeconomic conditions; the National Financial Conditions Index (NFCI), which captures credit and financial market conditions; and log-differenced industrial production. The sample covers 1960–2025 at monthly frequency, though availability of some of the series constrains some of the starting dates (CFNAI begins in 1967, NFCI in 1971).

Sectoral Mapping to Industry Portfolios. The empirical analysis in Section 6 matches sectoral deregulation indexes to industry stock returns. Table A.3 provides the complete mapping between sectoral deregulation categories and Fama–French 49 industry portfolios. Each of the 49 portfolios is assigned uniquely to one sectoral deregulation category based on the industry's primary activity. For example, the Finance sectoral deregulation index is matched to the Banking, Insurance, Real Estate, and Trading portfolios. The Telecom & Technology sectoral index is matched to industries including Communication, Computers, Computer Software, and Electronic Equipment. This mapping enables the estimation of how sector-specific deregulation affects stock returns within the affected industries, as reported in Table 2 and Figure 12.

Table A.2: Agency Group Definitions

Agency Group	**Agencies Included**
Finance	Securities and Exchange Commission; Federal Reserve System; Federal Deposit Insurance Corporation; Commodity Futures Trading Commission; National Credit Union Administration; Farm Credit Administration; Consumer Financial Protection Bureau; Federal Housing Finance Board; Federal Housing Finance Agency; Pension Benefit Guaranty Corporation; Federal Retirement Thrift Investment Board; Farm Credit System Insurance Corporation; Export-Import Bank; Treasury Department
Energy & Environment	Energy Department; Nuclear Regulatory Commission; Federal Energy Regulatory Commission; Environmental Protection Agency
Telecom & Technology	Federal Communications Commission
Transportation	Transportation Department; Federal Aviation Administration; Surface Transportation Board; Federal Maritime Commission; National Aeronautics and Space Administration; National Transportation Safety Board
Trade	Commerce Department; International Trade Commission; Trade Representative, Office of United States; Federal Trade Commission; Customs Service
Health	Health and Human Services Department; Consumer Product Safety Commission
Agriculture	Agriculture Department
Housing	Housing and Urban Development Department
General	Defense Department; Labor Department; Interior Department; Justice Department; Homeland Security Department; Veterans Affairs Department; State Department; Personnel Management Office; General Services Administration; Small Business Administration; Postal Service; Federal Emergency Management Agency; Education Department; Equal Employment Opportunity Commission; Government Ethics Office; Civil Rights Commission; and all other agencies not explicitly assigned to categories above
Executive Orders	Executive Orders by the President

Note: Agency names follow Federal Register conventions. Some agencies were reorganized or renamed during the 1995–2025 sample period; classification maintains consistency by tracking agency succession and using the Federal Register's own agency identification system. Each Federal Register rule and executive order is assigned to an agency group based on the issuing agency listed in the document metadata.

Table A.3: Sectoral Deregulation and Fama–French Industry Portfolio Mapping

Sectoral Deregulation	**Fama–French 49 Industry Portfolios**
Agriculture	Agriculture; Food Products; Candy & Soda; Beer & Liquor; Tobacco Products
Energy & Environment	Chemicals; Precious Metals; Non-Metallic and Industrial Metal Mining; Coal; Petroleum and Natural Gas; Utilities
Telecom & Technology	Machinery; Electrical Equipment; Communication; Computers; Computer Software; Electronic Equipment; Measuring and Control Equipment
Transportation	Automobiles and Trucks; Aircraft; Shipbuilding, Railroad Equipment; Transportation
Trade	Apparel; Textiles; Wholesale; Retail
Health	Healthcare; Medical Equipment; Pharmaceutical Products
Housing	Construction Materials; Construction
Finance	Banking; Insurance; Real Estate; Trading
General	Recreation; Entertainment; Printing and Publishing; Consumer Goods; Rubber and Plastic Products; Steel Works; Fabricated Products; Defense; Personal Services; Business Services; Business Supplies; Shipping Containers; Restaurants, Hotels, Motels; Other

Note: The table maps Fama–French 49 industry portfolios to sectoral deregulation categories used in the panel analysis of Section 6. Industry definitions follow the standard Fama–French SIC-based classification. Each portfolio is assigned uniquely to one sectoral deregulation category based on the industry's primary activity. This mapping enables estimation of how sector-specific deregulation affects stock returns within the affected industries.

Table A.4: Description of Variables: Macroeconomic Analysis

	Name	Description	Source
1	Regulation Index	News-based regulation index constructed from New York Times articles classified by AI. Measures intensity of regulatory activity.	Authors' calculations
2	Deregulation Index	News-based deregulation index constructed from New York Times articles classified by AI. Measures intensity of deregulatory activity.	Authors' calculations
3	Productivity	Utilization-adjusted total factor productivity in log levels. Computed by Fernald (2014).	San Francisco Fed
4	GDP	Real per capita GDP in log levels. Computed using real GDP (business, nonfarm sector), GDP deflator, and population.	FRED
5	Investment	Real per capita investment in log levels. Computed using gross private domestic investment plus PCE durable goods, GDP deflator, and population.	FRED
6	Consumption	Real per capita consumption in log levels. Computed using PCE (nondurable goods plus services), GDP deflator, and population.	FRED
7	Hours worked	Per capita hours worked in log levels. Computed using total hours in nonfarm business sector and population.	FRED
8	PCE price index	Personal consumption expenditures price index.	FRED
9	1-year Treasury yield	One-year Treasury constant maturity rate.	FRED
10	Government expenditure	Real per capita government consumption expenditures and gross investment in log levels. Computed using nominal government expenditure, GDP deflator, and population.	FRED
11	Stock prices	S&P 500 stock index in log levels.	FRED
12	Consumer confidence	Consumer Sentiment Index in log levels.	University of Michigan
13	VIX	CBOE Volatility Index, measuring implied volatility of S&P 500 options.	FRED
14	Corporate profits	Real per capita profits per unit of real GDP, after tax, in log levels. Computed using population.	FRED
15	Corporate profits tax rate	Changes in federal corporate income taxes divided by the previous-period corporate profits (minus Federal Reserve Bank profits).	NIPA

Note: Variables used in the vector autoregression analysis of Section 6. All variables are at quarterly frequency covering 1962:Q3–2025:Q3. Monthly series (regulation, deregulation, PCE price index, 1-year yield, VIX) are converted to quarterly by averaging over the quarter. Real variables are expressed in per capita terms using civilian noninstitutional population aged 16 and over. FRED refers to the Federal Reserve Economic Data database maintained by the Federal Reserve Bank of St. Louis.

Table A.5: Description of Variables: Industry Panel Analysis

	Name	Description	Source
1	Sectoral Deregulation Indexes	Sector-specific deregulation indexes constructed from Federal Register documents classified by AI. Measures intensity of deregulatory activity by sector (finance, energy, telecommunications, transportation, health, housing, trade, agriculture). Indexed to mean 100 over 1995–2019.	Authors' calculations
2	Industry Portfolio Returns	Monthly value-weighted returns for 49 industry portfolios. Industries classified based on SIC codes.	Fama–French Data Library
3	Chicago Fed National Activity Index (CFNAI)	Weighted average of 85 monthly indicators of economic activity, designed to have mean zero and standard deviation one. Positive values indicate above-average growth.	Chicago Fed
4	National Financial Conditions Index (NFCI)	Weighted average of 105 measures of financial conditions, including risk, credit, and leverage indicators. Higher values indicate tighter financial conditions.	Chicago Fed
5	Industrial Production	Industrial production index for all industries in log-differences. Measures real output of manufacturing, mining, and electric and gas utilities.	FRED

Note: Variables used in the industry-level panel analysis of Section 7. All variables are at monthly frequency covering 1960–2025, with availability varying by series (CFNAI begins in 1967, NFCI in 1971). FRED refers to the Federal Reserve Economic Data database maintained by the Federal Reserve Bank of St. Louis.

Figure A.1: Deregulation Classification Prompt

```
DEFINITION OF DEREGULATION:
Deregulation is the reduction, elimination, or simplification of government regulations. It
includes:
• Removing/modifying rules, reducing oversight, eliminating barriers to entry or exit,
  streamlining compliance procedures, or reducing reporting requirements
• Actual measures: bills, laws, executive orders by cities, states, Congress, or administrative
  agencies; sunset provisions; exemptions; or reduced enforcement
• Advocacy: CEOs, business leaders, groups, experts calling for deregulation

ECONOMIC FOCUS:
This index measures ECONOMIC deregulation. Prioritize articles about: financial regulation,
environmental rules affecting business, labor market regulation, trade barriers, licensing
requirements, energy regulation, telecom/tech regulation, healthcare regulation affecting
industry, zoning/land use, and business compliance burdens. CRITICAL DISTINCTION:

• DEREGULATION = LESS government power, LESS oversight, FEWER restrictions
• MORE REGULATION = MORE government power, MORE oversight, MORE restrictions

WHAT IS NOT DEREGULATION:
• Tax cuts or changes to tax rates are NOT deregulation
• Fiscal policy (spending, subsidies, tariffs) is NOT deregulation unless it also removes
  regulatory requirements
• Social policy with little economic impact (criminal justice reform, gender-related laws, DEI
  policy, education curriculum changes) should be scored 0.0

TRADE LIBERALIZATION:
When the U.S. and a foreign country agree to reduce economic and trade barriers (tariffs, quotas,
regulatory harmonization), score BOTH U.S. Overall AND Foreign, since both sides are deregulating.
Unilateral foreign trade liberalization = Foreign only. Unilateral U.S. trade liberalization =
U.S. Overall only. THE TWO INDEXES:

1. U.S. OVERALL: Deregulation affecting U.S. entities across ALL economic sectors
2. FOREIGN: Deregulation affecting foreign countries or international contexts

SCORE SCALE --- USE ONLY: 0.0, 0.2, 0.4, 0.6, 0.8, 1.0
• 0.0: Pro-regulation OR PAST deregulation OR more regulation OR no deregulation discussed
• 0.2: Single brief mention or passing reference to deregulation
• 0.4: 1--2 sentences discussing deregulation; brief but clear mention
• 0.6: Multiple sentences/paragraphs; advocacy by CEOs/groups; state/local proposals
• 0.8: Substantial article focus on deregulation; federal proposals or state laws enacted
• 1.0: Major article focus; federal laws enacted or comprehensive deregulation coverage

CRITICAL RULES:
1. Pro-regulation articles = 0.0
2. Articles mentioning PAST deregulatory EVENTS (many years ago or more) = 0.0
3. Social policy without clear economic regulatory implications = 0.0
4. Bilateral trade liberalization = score BOTH indexes
```

Note: Core prompt structure used to classify newspaper articles for deregulation content. The complete prompt used in classification also includes multiple calibration examples (not shown). For instance, examples include: "Senator Proposes Looser Regulation of Airlines" (scored as 0.6 for proposed deregulation), "President signs telecommunications deregulation into law" (scored as 1.0 for enacted deregulation), "EPA eliminates emissions standards" (scored as 1.0 for enacted federal deregulation), and "History: Deregulation happened in 1980s" (scored as 0.0 for past events not current policy).

Figure A.2: Regulation Classification Prompt

```
DEFINITION OF REGULATION:
Regulation is the introduction, expansion, or strengthening of government rules and
oversight.  It includes:
• Introducing/expanding rules, increasing oversight, adding barriers to entry or exit
• Actual measures:  bills, laws, executive orders by cities, states, or Congress
• Advocacy:  consumer groups, politicians, experts, activists calling for more
  regulation

CRITICAL DISTINCTION:
• MORE REGULATION = MORE government power, MORE oversight, MORE restrictions,
  STRICTER/TIGHTER regulation
• DEREGULATION = LESS government power, LESS oversight, FEWER restrictions

WHAT IS NOT REGULATION:
• Tax increases or changes to tax rates are NOT regulation
• Fiscal policy (spending, subsidies, tariffs) is NOT regulation unless it also adds
  regulatory requirements
• Social policy with little direct economic impact (criminal justice reform,
  gender-related laws, DEI policy, education curriculum changes) should be scored
  0.0 unless the article makes clear these changes add economic regulations (licensing,
  labor rules, business compliance requirements, etc.)

TRADE RESTRICTIONS:
• When the U.S. and a foreign country increase economic and trade barriers (tariffs,
  quotas, regulatory harmonization toward stricter standards), score BOTH U.S. Overall
  AND Foreign, since both sides are regulating
• Unilateral foreign trade restriction (e.g.  China tightening its own import rules) =
  Foreign only
• Unilateral U.S. trade restriction = U.S. Overall only

ECONOMIC FOCUS:
This index measures ECONOMIC regulation.  Prioritize articles about:  financial
regulation, environmental rules affecting business, labor market regulation, trade
barriers, licensing requirements, energy regulation, telecom/tech regulation, healthcare
regulation affecting industry, zoning/land use, and business compliance burdens.

SCORE SCALE --- USE ONLY: 0.0, 0.2, 0.4, 0.6, 0.8, 1.0
• 0.0:  Pro-deregulation OR less regulation OR no new regulation discussed
• 0.2:  Single brief mention or passing reference to new/more regulation
• 0.4:  1--2 sentences discussing new/more regulation; brief but clear mention
• 0.6:  Multiple sentences/paragraphs; advocacy by consumer groups/politicians;
  state/local proposals
• 0.8:  Substantial focus on new regulation; federal proposals or state laws enacted
• 1.0:  Major focus; federal laws enacted or comprehensive new regulatory coverage

CRITICAL RULES:
• Pro-deregulation articles = 0.0
• Articles mentioning PAST regulatory EVENTS (many years ago or more) = 0.0

THE TWO INDEXES:
• U.S. OVERALL: Regulation affecting U.S. entities across ALL sectors
• FOREIGN: Regulation affecting foreign countries or international contexts
```

Note: This figure displays the prompt used to classify news articles for the regulation index. The model assigns two separate scores (U.S. Overall and Foreign) based on the intensity and stage of regulatory activity discussed in each article. The prompt also includes multiple calibration examples, not shown.

Figure A.3: Federal Register Rule Deregulation Classification Prompt

DEFINITION OF DEREGULATION:
Deregulation is the reduction or elimination of government regulations. It includes:
- Removing/rescinding existing rules or requirements
- Simplifying rules, reducing oversight, eliminating barriers to entry/operation
- Streamlining compliance processes, delegating authority to reduce approval layers
- Granting exemptions from existing requirements
- Relaxing standards, limits, or restrictions; sunsetting or terminating regulations

CRITICAL DISTINCTION:
- DEREGULATION = LESS regulatory burden, FEWER requirements, MORE flexibility, EASIER compliance
- NEW/INCREASED REGULATION = MORE regulatory burden, NEW requirements, STRICTER oversight, ADDITIONAL compliance

SCORE SCALE --- USE ONLY: 0.0, 0.2, 0.4, 0.6, 0.8, 1.0
Intensity considers BOTH depth (how much burden reduced) AND breadth (how many entities/sectors affected)
- 0.0: New regulation OR no deregulation discussed
  - New requirements, inspections, restrictions, safety zones
  - Technical corrections fixing factual errors (not simplifying compliance)
  - Administrative changes with no burden impact (e.g., address updates)
  - Authority transfers between federal offices with no streamlining
- 0.2: Exemptions only OR purely administrative simplification
  - Individual entity exemptions from existing rules
  - Minor form/reporting changes with no substantive impact
- 0.4: Limited rule relaxation OR targeted compliance reduction
  - Relaxing standards for specific applications
  - Streamlining approval processes for defined categories
  - Small regulatory carve-outs with compliance burden reduction
- 0.6: Moderate deregulation
  - Meaningful exemptions or compliance simplification
  - Relaxing restrictions affecting an industry segment
  - Multiple minor deregulatory actions combined
- 0.8: Substantial deregulation
  - Major exemptions or significant compliance burden reduction
  - Broad relaxation of industry-wide restrictions
  - Delegation reducing multiple approval layers across sectors
  - Explicit goal of ‘‘eliminating unnecessary regulation’’ with concrete actions
- 1.0: Major comprehensive deregulation
  - Rescinding/sunsetting major regulations affecting entire sectors
  - Comprehensive elimination of regulatory programs
  - Sweeping exemptions or dramatic burden reductions affecting many entities

CRITICAL RULES:
1. New regulatory requirements = 0.0 (even if improving safety/efficiency)
2. Technical corrections fixing errors (not simplifying compliance) = 0.0
3. Administrative shuffling with no burden change = 0.0
4. Only ACTUAL reduction/elimination/streamlining counts as deregulation

Note: The Federal Register rule classification prompt emphasizes both depth (how much regulatory burden is reduced) and breadth (how many entities or sectors are affected). Narrow exemptions affecting few entities receive low scores (0.2), while comprehensive rescission of major regulations receives high scores (1.0). The complete implementation includes detailed examples calibrating the scoring scale (not shown).

Figure A.4: Executive Order Deregulation Classification Prompt

DEFINITION OF DEREGULATION:
Deregulation is the reduction or elimination of government regulations. It includes:
- Removing/rescinding existing rules or requirements
- Simplifying rules, reducing oversight, eliminating barriers to entry/operation
- Streamlining compliance processes, delegating authority to reduce approval layers
- Granting exemptions from existing requirements
- Relaxing standards, limits, or restrictions; sunsetting or terminating regulations

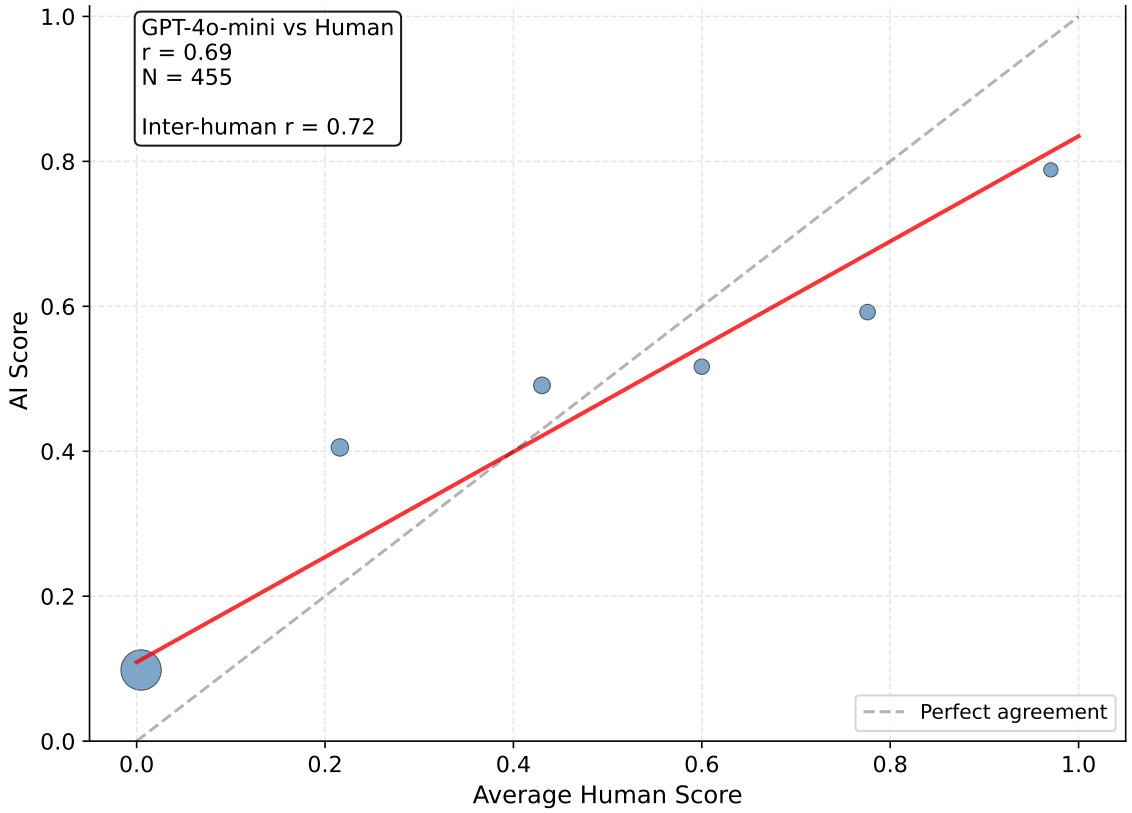
CRITICAL DISTINCTION:
- DEREGULATION = LESS regulatory burden, FEWER requirements, MORE flexibility, EASIER compliance
- NEW/INCREASED REGULATION = MORE regulatory burden, NEW requirements, STRICTER oversight, ADDITIONAL compliance

SCORE SCALE --- USE ONLY: 0.0, 0.2, 0.4, 0.6, 0.8, 1.0
Intensity considers BOTH depth (how much burden reduced) AND breadth (how many entities/sectors affected)
- 0.0: New regulation OR no deregulation discussed
  - New requirements, inspections, restrictions, safety zones
  - Technical corrections fixing factual errors (not simplifying compliance)
  - Administrative changes with no burden impact (e.g., address updates)
  - Authority transfers between federal offices with no streamlining
- 0.2: Exemptions only OR purely administrative simplification
  - Individual entity exemptions from existing rules
  - Minor form/reporting changes with no substantive impact
- 0.4: Limited rule relaxation OR targeted compliance reduction
  - Relaxing standards for specific applications
  - Streamlining approval processes for defined categories
  - Small regulatory carve-outs with compliance burden reduction
- 0.6: Moderate deregulation
  - Meaningful exemptions or compliance simplification
  - Relaxing restrictions affecting an industry segment
  - Multiple minor deregulatory actions combined
- 0.8: Substantial deregulation
  - Major exemptions or significant compliance burden reduction
  - Broad relaxation of industry-wide restrictions
  - Delegation reducing multiple approval layers across sectors
  - Explicit goal of ‘‘eliminating unnecessary regulation’’ with concrete actions
- 1.0: Major comprehensive deregulation
  - Rescinding/sunsetting major regulations affecting entire sectors
  - Comprehensive elimination of regulatory programs
  - Sweeping exemptions or dramatic burden reductions affecting many entities

CRITICAL RULES:
1. New regulatory requirements = 0.0 (even if improving safety/efficiency)
2. Technical corrections fixing errors (not simplifying compliance) = 0.0
3. Administrative shuffling with no burden change = 0.0
4. Only ACTUAL reduction/elimination/streamlining counts as deregulation

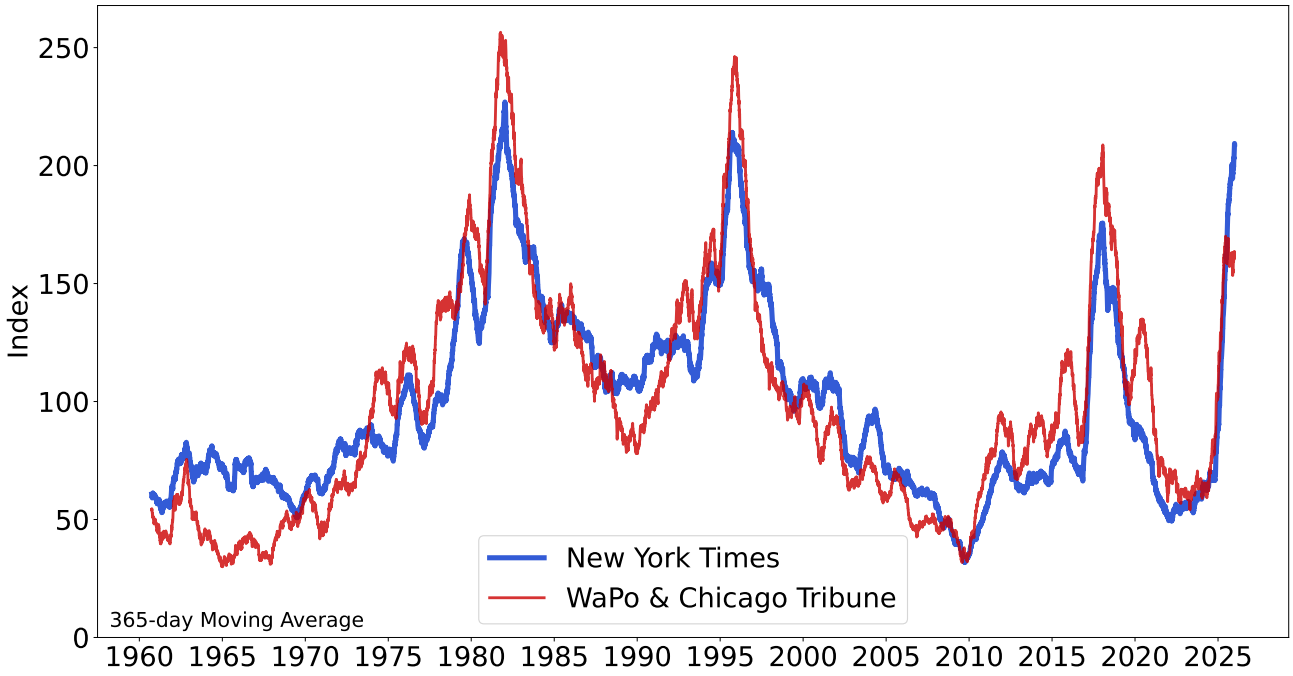
Note: The executive order classification prompt uses the same scoring scale as the rule prompt but with calibration adjusted for presidential directives. Executive orders often establish government-wide mandates or direct agencies to undertake deregulatory reviews rather than directly rescinding specific rules, requiring distinct examples and guidance.

Figure A.5: Human vs. AI-Based Deregulation Scores



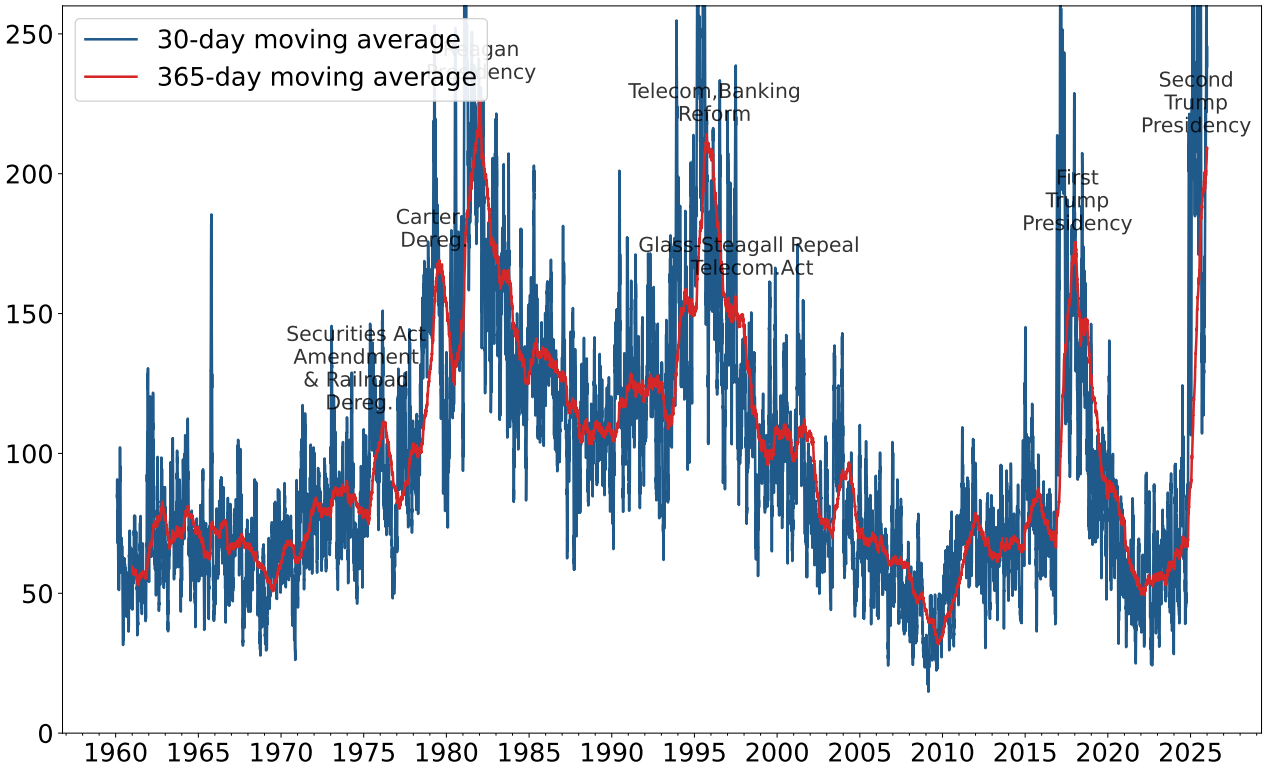
Note: Binned scatterplot comparing human and AI classifications of deregulation intensity. We randomly sampled 500 articles from the full corpus and obtained independent human classifications. Each point represents the average AI score (vertical axis) and average human score (horizontal axis) within a bin. The strong positive relationship confirms substantial agreement between human and AI classifications.

Figure A.6: Alternative News Sources: New York Times vs. Washington Post + Chicago Tribune



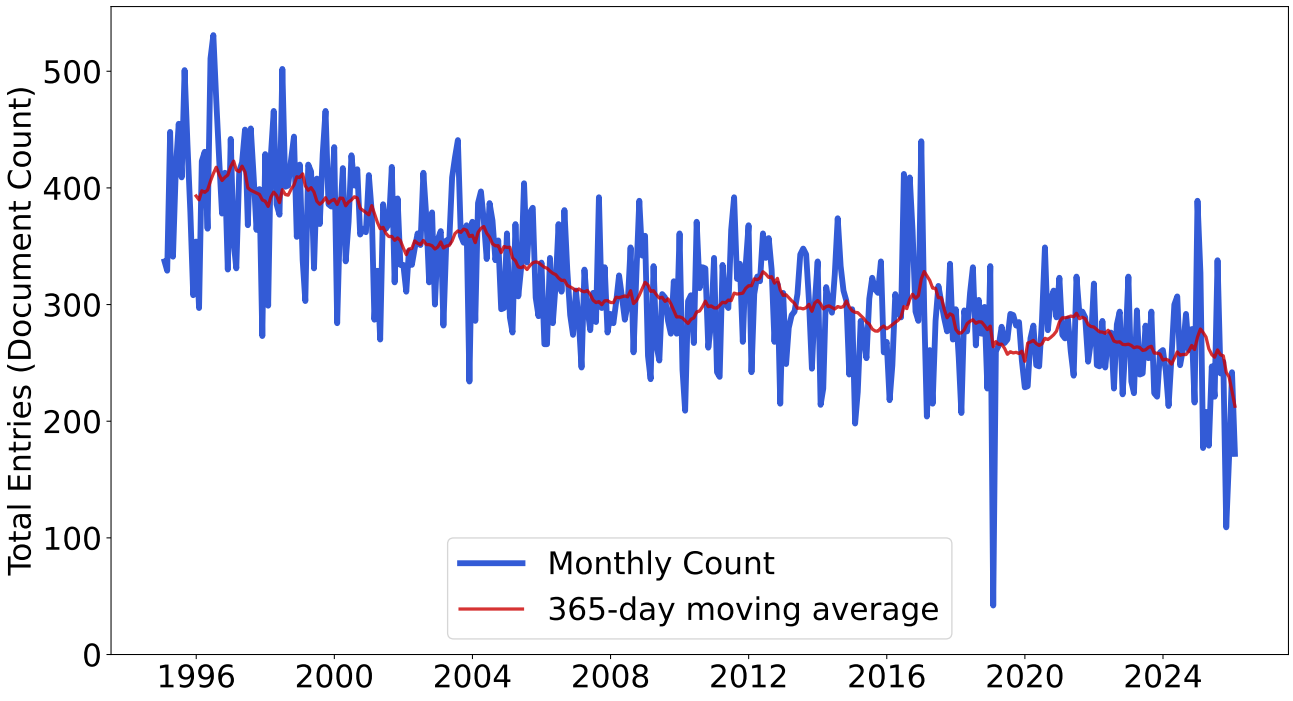
Note: Comparison of deregulation indexes constructed from three different newspapers using identical classification procedures. The New York Times index (main series used throughout the paper) is plotted against an index constructed combining Washington Post and Chicago Tribune articles. The high correlation across sources confirms that the index captures genuine variation in deregulatory activity rather than idiosyncrasies of New York Times editorial decisions or geographic focus. All three indexes peak during the same major reform episodes.

Figure A.7: The U.S. Economic Deregulation Index with Alternative Smoothing Windows



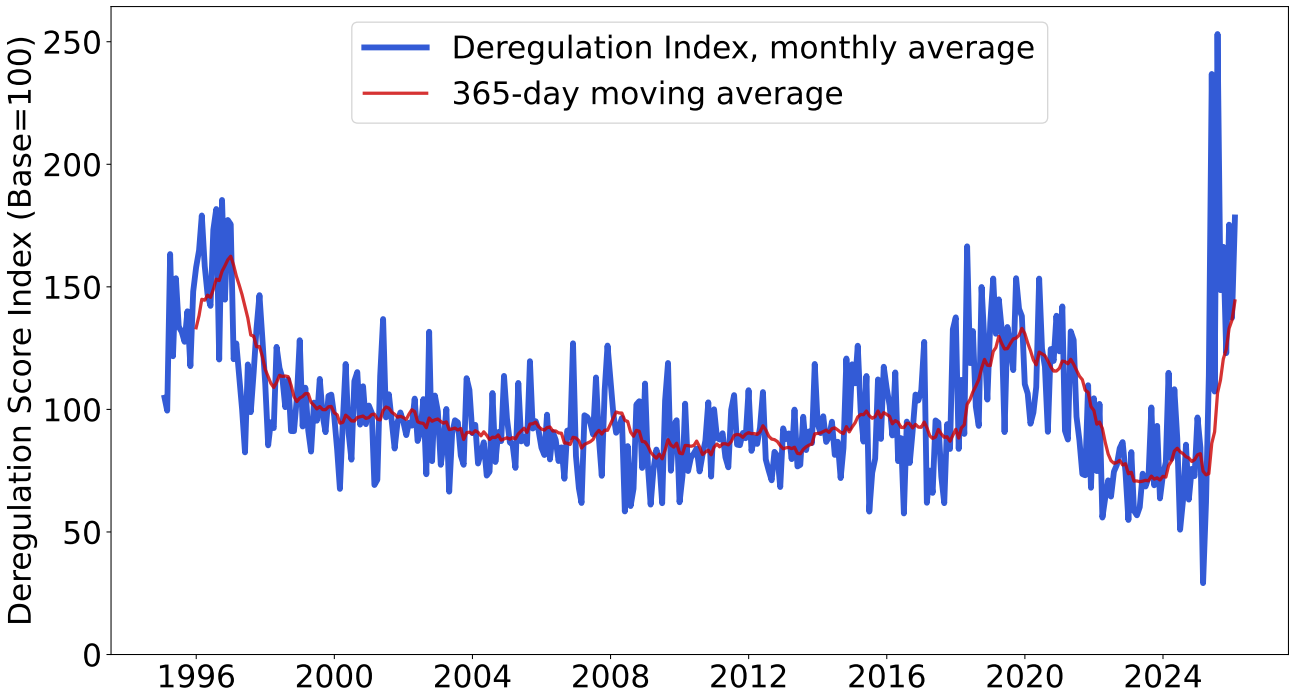
Note: The U.S. deregulation index displayed with two alternative smoothing windows: 30-day moving average (more volatile, capturing short-term fluctuations) and 365-day moving average (smoother, emphasizing persistent trends). Both series are indexed to mean 100 in the 1965–2019 period. Both filters identify the same major deregulation episodes, confirming that the choice of smoothing affects noise level but not fundamental patterns. The 365-day window is used in the main analysis because it better corresponds to quarterly macroeconomic data.

Figure A.8: Total Federal Register Document Count, Monthly Aggregation



Note: The figure shows the total number of Federal Register documents (rules and executive orders) published per month from 1995 to 2025. The light line shows raw monthly counts; the dark line shows a 365-day moving average. The secular decline from approximately 400 documents per month in the mid-1990s to around 250–300 documents in recent years reflects a shift toward fewer but larger and more economically significant rules, as agencies increasingly bundle discrete regulatory issues into comprehensive rule-makings (Febrizio, 2021). This trend reinforces the importance of content-based classification rather than simple document counts: declining volume would mechanically suggest declining regulatory activity, yet content analysis shows substantial deregulatory activity during periods with fewer total rules.

Figure A.9: Federal Register Deregulation Index, Monthly Aggregation



Note: The Federal Register Deregulation Index at monthly frequency (light line) with 365-day moving average (dark line), 1995–2025. The index aggregates AI-classified deregulation scores of rules and executive orders, normalized by total documents published each day, and indexed to mean 100 over 1995–2019. Raw monthly values exhibit substantial volatility, with sharp spikes corresponding to major deregulatory actions such as Congressional Review Act rescissions in 2017 and executive orders in early 2025. The moving average reveals underlying trends: elevated deregulation in the mid-1990s (telecommunications reform), a trough in the mid-2000s, a peak in 2017–2018 (first Trump administration), and very high levels beginning in late 2024 (second Trump administration).