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SECTOR BRIEF

REGULATORY STATISTICS FOR THE RAILROAD SECTOR FROM REGDATA 2.0

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September 2014

ABSTRACT

RegData 2.0 offers three simple and replicable measures of regulation, each created with custom-made text analysis software run on the annual *Code of Federal Regulations*. This sector brief presents these statistics for five different federal regulatory agencies that are relevant to the railroad industry: Federal Motor Carriers Safety Administration, Federal Railroad Administration, Mine Safety and Health Administration, Occupational Safety and Health Administration, and Pipelines and Hazardous Material Safety Administration.

INTRODUCTION

RegData 2.0, an objective text-based database, offers three simple and replicable measures of regulation, each created with custom-made text analysis software run on the annual *Code of Federal Regulations*. Each measure can be examined on an agency-by-agency basis. These measures are:

1. Search term count
2. Restriction count
3. Total word count

These metrics of regulation convey information about the agencies creating regulation as well as the industries or sectors mentioned in regulation. RegData 2.0 can produce statistics for hundreds of different regulatory departments, agencies, offices, and commissions. This permits a more complete characterization and measurement of regulatory accumulation for a specific sector.[1] For example, RegData 2.0 tracks how often a sector is mentioned in federal regulation over time, which agencies are mentioning the sector, and what the long-term regulatory trends are in these agencies and for this sector.

The second section of this report explains these metrics in detail and gives some statistics and figures for five agencies. Three of the agencies are housed in the Department of Transportation and were selected because at least some of their regulations directly address railroads or railroad safety. Two agencies were selected from the Department of Labor as a way of examining the relevance and possible overlap of workplace safety regulations to railroad and railroad safety regulations. The third section offers brief concluding remarks. This brief includes a data appendix.

1. For background on regulatory accumulation and its potential consequences, see Patrick A. McLaughlin and Richard Williams, "The Consequences of Regulatory Accumulation and a Proposed Solution" (Working Paper No. 14-03, Mercatus Center at George Mason University, February 2014), http://mercatus.org/sites/default/files/McLaughlin_RegulatoryAccumulation_v2.pdf.

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REGDATA METRICS IN DETAIL FOR A SAMPLE OF RAILROAD-RELEVANT AGENCIES

For this report, we have limited our analysis to a sample of five agencies that were determined as likely to be important to the railroad industry. Three of the agencies were selected from the Department of Transportation as agencies likely to promulgate regulations that directly address railroads or railroad safety. The other two agencies were selected from the Department of Labor as agencies whose regulations may be directly or indirectly affecting the railroad sector. However, RegData 2.0 could be used to produce statistics similar to those presented here for other agencies within or external to these departments. The RegData metrics of regulation for these agencies and the railroad transportation sector are explained in detail below.

Search Term Count

Agency-specific search term counts are available for most industries or sectors in the United States economy. This measure of regulation is created by searching the regulatory text published in the *Code of Federal Regulations* by each agency for certain terms that are related to specific industries. These search terms are created following an algorithm that generates permutations of the original sector description given by the North American Industry Classification System (NAICS). This algorithm is explained in detail in appendix A of the RegData working paper.[2] For this report, the search terms are limited to those that are related to rail transportation (NAICS code 482). This is a limited set of search terms consisting of: "rail transportation," "rail transporter," "rail transporters," "transportation," and "rail." The final result—the variable "search term count"—contains the total number of times these terms were found in the relevant text.[3]

When applied to specific agencies, search term count measures how often an agency uses these sector or industry-specific search terms each year. The user can compare the relevance of different agencies to an industry by comparing search term counts. In general, the more search terms for a specific industry or sector are found in an agency's text, the more relevant that agency's text to that industry or sector.

Furthermore, changes in search term counts over time likely indicate changes in the relevance of the agency's text to the industry or sector. Thus, if an agency's search term count for the rail transportation sector is increasing over time, then it is likely that an increasing amount of that agency's text is relevant to the rail transportation sector. Note that simply finding a search term may not indicate that the industry was restricted in some cases because search terms could be used in exemption clauses or as information only.

Figure 1 below shows the total number of times railroad search terms were found in each year from 1997 to 2012 in the regulatory text of the five agencies studied in this report (Federal Motor Carriers Safety Administration [FMCSA], Federal Railroad Administration [FRA], Mine Safety and Health Administration [MSHA], Occupational Safety and Health Administration [OSHA], and Pipelines and Hazardous Material Safety Administration [PHMSA][4]). The data plotted in figure 1 is the aggregate search term count for all five of these agencies.

As figure 1 shows, railroad search terms were found 3,644 times in these five agencies' regulations in 1997. In 2012, the same search terms were found 5,319 times—a 46 percent increase. By way of comparison, all other agencies (that is, all federal agencies except the five shown in figure 1) mentioned railroad search terms 18,128 times in 1997 and 20,586 times in 2012—an increase of 14 percent.

2. Omar Al-Ubaydli and Patrick A. McLaughlin, "RegData: A Numerical Database on Industry-Specific Regulations for All US Industries and Federal Regulations, 1997–2012" (Working Paper No. 12-20, Mercatus Center at George Mason University, Arlington, VA, September 2014), http://ssrn.com/abstract=2099814.

3. Users of RegData can download the entire database from the website (http://regdata.org) and choose to include or exclude different search terms, if desired.

4. The data series for PHMSA includes data from its predecessor, Research and Special Programs Administration, for years 1997 to 2004.

Figure 1. Railroad sector search term count, summed across all five agencies.

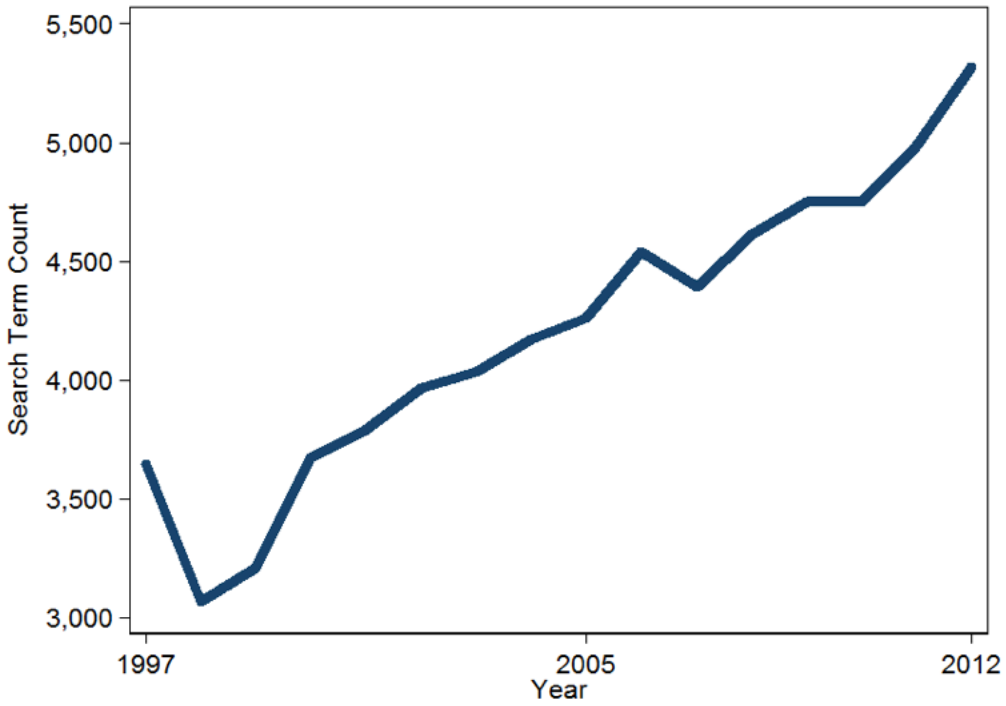

Figure 2. Railroad sector search term count, by agency.

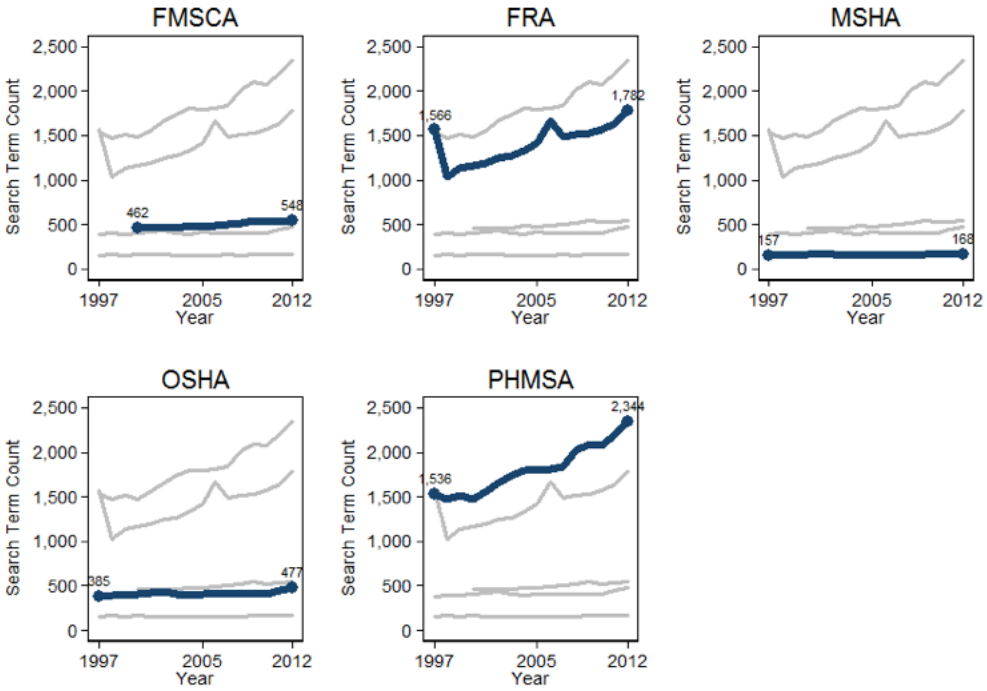

Figure 3. Total word count, summed across all five agencies.

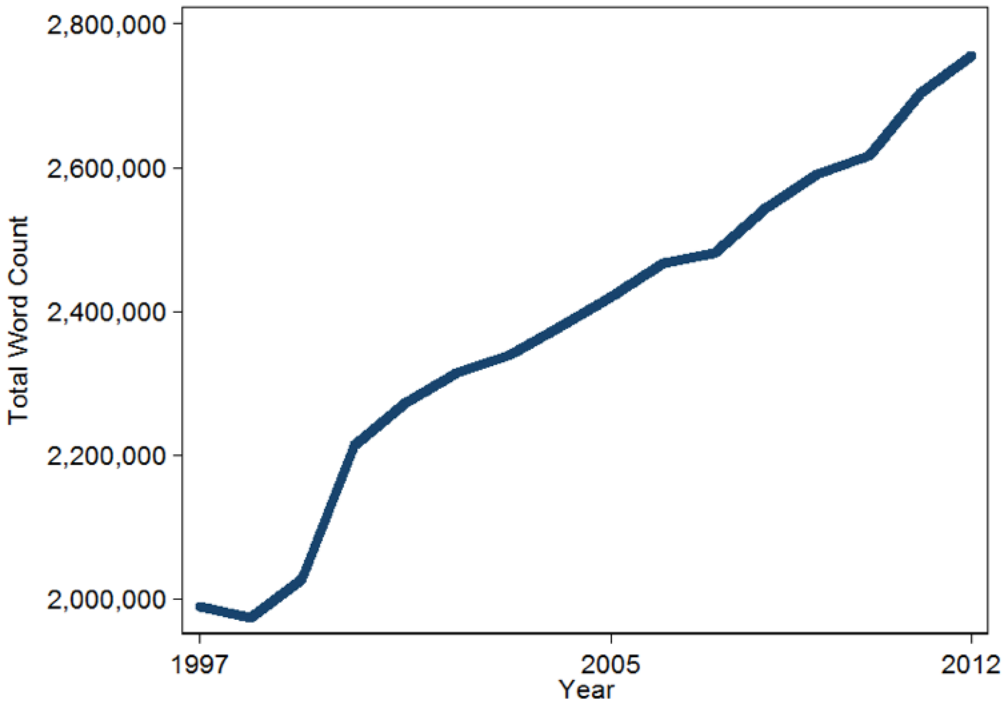

Figure 4. Total word count, by agency.

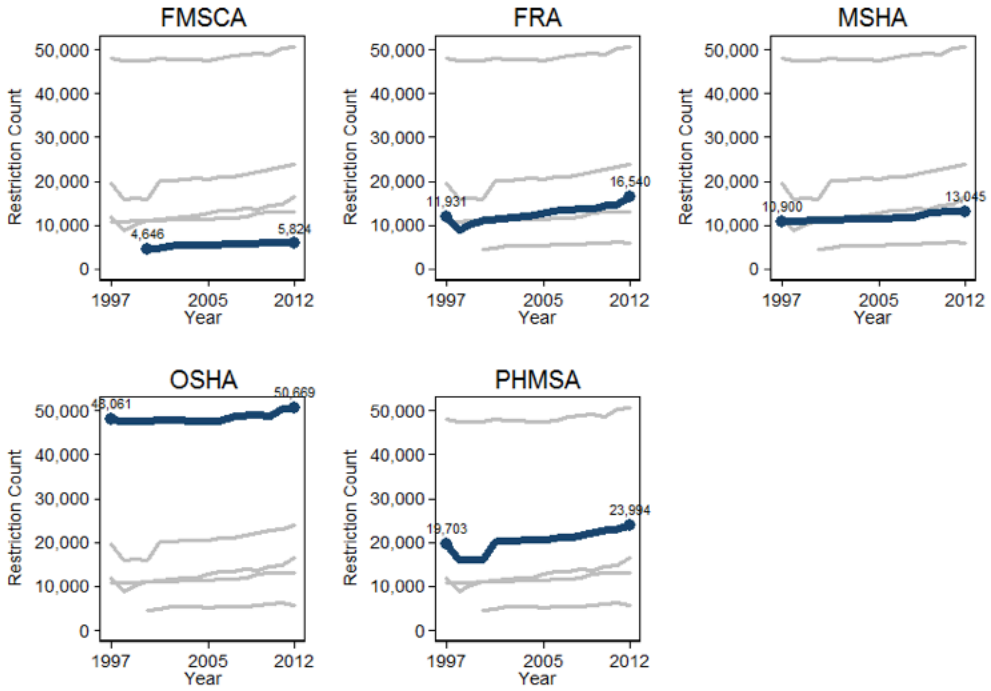

Figure 2 displays search term counts for each of the five regulatory agencies examined here: Federal Motor Carriers Safety Administration (FMCSA), Federal Railroad Administration (FRA), Mine Safety and Health Administration (MSHA), Occupational Safety and Health Administration (OSHA), and Pipelines and Hazardous Material Safety Administration (PHMSA).[5]

Figure 2 shows the relative importance of PHMSA and FRA to railroads, compared to OSHA, MSHA, and FMCSA. It is perhaps surprising to see PHMSA mention railroad search terms more often FRA itself. On the other hand, hazardous materials are often transported via rail.

Total Word Count

Agency-specific word counts tally all the words published in the *Code of Federal Regulations* by the relevant agency.

Total word count is simply a broad measure of the overall size and scope of an agency's regulations overall. Figure 3 displays the total word count aggregated across all five agencies.

Figure 4 breaks the word count series apart by agency, showing that OSHA consistently has the largest word count of the five agencies considered here.

However, the growth of total word counts over this time period does differ substantially across the five agencies, as shown below in table 1.

Table 1. Percent growth of total word count relative to 1997.

Agency	Percent growth of total word count
FMCSA	41%
FRA	103
MSHA	11
OSHA	12
PHMSA	27

Table 1 gives the growth, in percentage terms, of total word count for each agency from 1997 to 2012, with the exception of FMCSA. FMCSA growth was calculated relative to the year 2000—its first year as an agency—rather than 1997. Among these agencies, FRA stands out because it grew by 103 percent while all the others grew by 41 percent or less.

Restriction Count

Agency-specific restriction counts are similarly available on a sector or an industry-specific basis. Restriction counts are designed to measure the restrictiveness of the text surrounding the mention of a specific industry. Restriction counts are created by searching for the following specific text strings: "shall," "must," "may not," "prohibited," and "required." Restrictions are tallied whenever they occur within the same *Code of Federal Regulations* part as one or more of the industry search terms. Thus, for this report, any restrictions that occur in *Code of Federal Regulations* parts that do not mention any rail transportation-related search terms are excluded from the restriction count. Generally speaking, a higher restriction count for a given section of regulatory text indicates a higher number of legally binding obligations created by that text.

5. The data series for PHMSA includes data from its predecessor, Research and Special Programs Administration, for years 1997 to 2004.

Figure 5 below gives the restriction count aggregated across all five agencies.

Figure 5. Restriction count, summed across all five agencies.

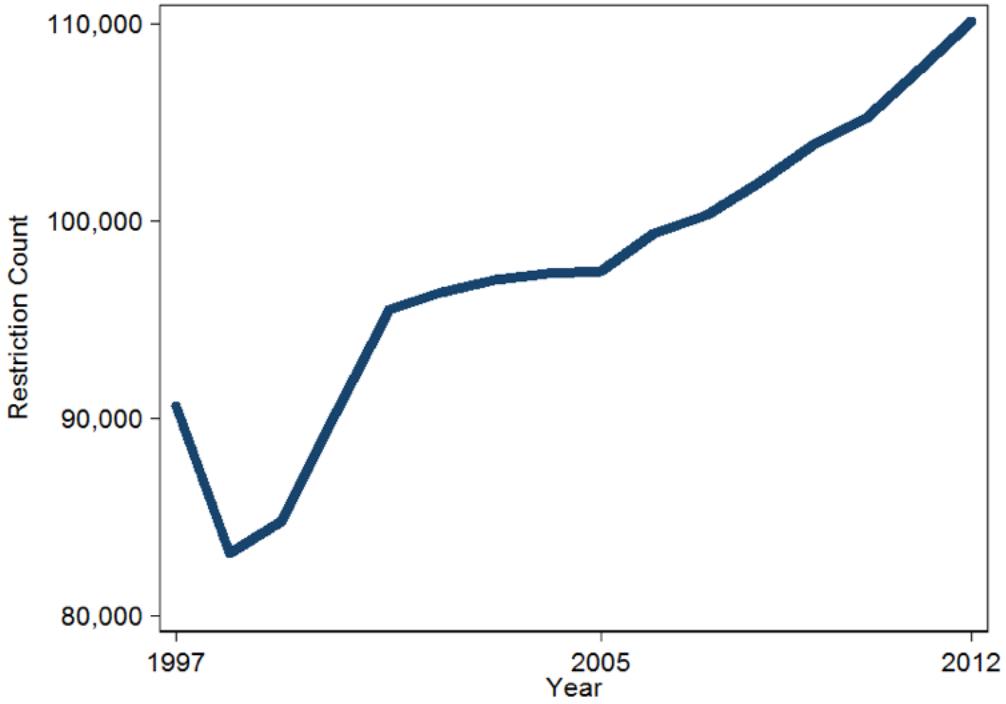

Figure 6. Restriction count by agency.

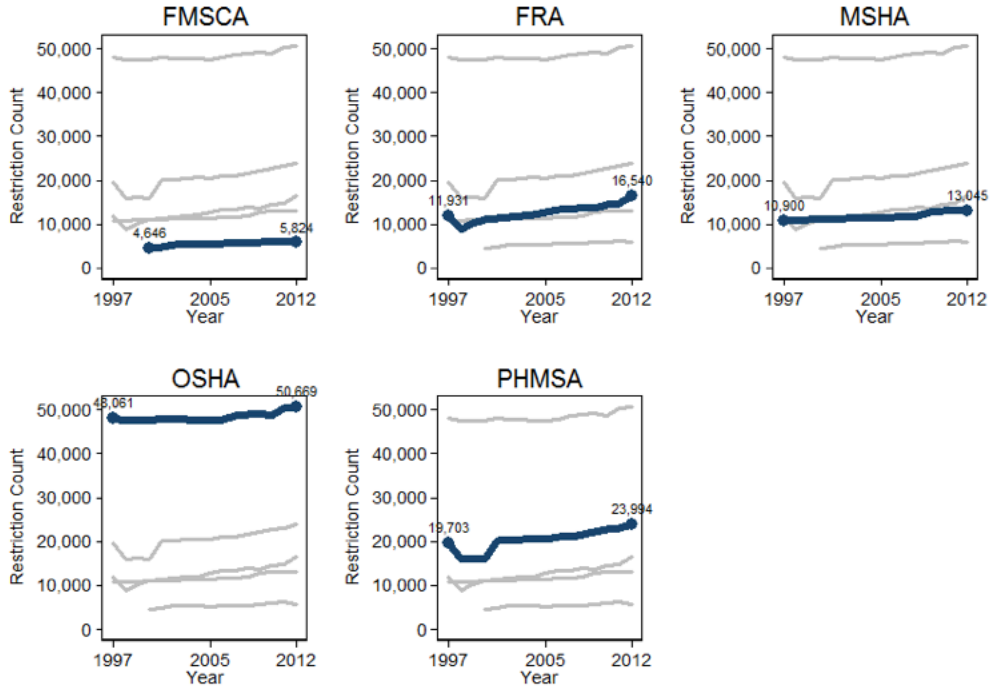

Figure 6, above, shows the growth paths of restriction counts for each agency and for the aggregated set of all five agencies. Generally speaking, restriction counts have been growing more slowly than total word counts, although this does not hold for all agencies.

Table 2. Percent growth of restriction count relative to 1997.

Agency	Percent growth in restriction count, 1997 to 2012
FMCSA	26%
FRA	39
MSHA	20
OSHA	5
PHMSA	22

As table 2 above shows, the percentage growth of restriction counts since 1997 for each of these agencies is positive, as it was for total word count (table 1). Although the direction of change is the same for both measures, the magnitudes of growth of restriction counts is smaller than those of total word counts for four of the five agencies, with MSHA being the exception. When total word count grows faster than restriction count, it is likely that the regulatory text being measured contains more information per restriction. This information could include design parameters or exemptions. Of course, it is also possible that the text contains binding legal obligations other than those indicated by the words "shall," "must," "may not," "prohibited," and "required."

CONCLUSION

The quantification of regulation creates an opportunity to observe and understand long-term regulatory trends, their causes, and their effects. RegData 2.0 permits the analysis of regulatory trends for specific agencies and the sector or industries they regulate. This paper shows one example of an application of RegData 2.0 to the railroad sector and five agencies that were selected because of their likely importance to that sector.

Broadly speaking, the trends shown for these five agencies match the previously observed phenomenon of regulatory accumulation—that is, the tendency for regulations to build up over time as policymakers react to exigencies of the day.[6] Economists Michael Mandel and Diana Carew explain the phenomenon well: "The political system, understandably, reacts to major events—new technologies, corporate accounting scandals, environmental discoveries, or reports of tainted food or faulty products."[7] When regulations are created in reaction to major events, "new rules are [placed] on top of existing reporting, accounting, and underwriting requirements. . . . For each new regulation added to the existing pile, there is a greater possibility for interaction, for inefficient company resource allocation, and for reduced ability to invest in innovation. The negative effect on US industry of regulatory accumulation actually compounds on itself for every additional regulation added to the pile."[8] By showing regulatory trends for a single industry across a number of regulators, RegData 2.0 serves to focus regulators and policymakers on areas where such negative interactions may occur.

6. McLaughlin and Williams, "Consequences of Regulatory Accumulation."

7. Michael Mandel and Diana G. Carew, "Regulatory Improvement Commission: A Politically Viable Approach to U.S. Regulatory Reform" (Policy Memo, Progressive Policy Institute, Washington, DC, May 2013), 3–4, http://www.progressivepolicy.org/2013/05/regulatory-improvement-commission-a-politically-viable-approach-to-u-s-regulatory-reform/.

8. Ibid.

The tables included in this appendix give all data for the measures of regulation discussed above for the rail transportation sector for five specific agencies: OSHA, MSHA, PHMSA, FRA, and FMSCA. Another table, at the end, gives the summation across all five of these agencies.

Table A.1. Regulation of rail transportation by the Occupational Safety and Health Administration.

Year	Search Term Count	Restriction Count	Total Word Count
1997	385	48,061	975,387
1998	400	47,441	954,059
1999	395	47,501	960,625
2000	402	47,511	963,188
2001	426	48,030	987,902
2002	433	47,843	987,992
2003	402	47,812	987,259
2004	397	47,662	989,144
2005	415	47,385	993,311
2006	408	47,937	1,006,615
2007	406	48,535	1,015,175
2008	405	49,021	1,044,136
2009	410	49,239	1,048,553
2010	411	48,763	1,026,407
2011	452	50,246	1,082,360
2012	477	50,669	1,091,018

Table A.2. Regulation of rail transportation by the Mine Safety and Health Administration.

Year	Search Term Count	Restriction Count	Total Word Count
1997	157	10,900	311,239
1998	163	10,900	311,548
1999	159	10,926	308,646
2000	164	10,982	307,334
2001	160	11,070	310,150
2002	160	11,226	312,817
2003	158	11,265	315,834
2004	155	11,465	321,664
2005	159	11,461	321,381
2006	158	11,586	324,470
2007	162	11,732	326,825
2008	157	11,841	330,786
2009	166	12,907	340,709
2010	166	13,163	348,317
2011	168	13,159	348,284
2012	168	13,045	346,024

Table A.3. Regulation of rail transportation by the Pipeline and Hazardous Materials Safety Administration (before 2005, Research and Special Programs Administration).

Year	Search Term Count	Restriction Count	Total Word Count
1997	1,536	19,703	473,226
1998	1,472	15,971	473,226
1999	1,513	16,217	482,290
2000	1,480	15,984	472,614
2001	1,556	20,159	491,904
2002	1,664	20,225	501,915
2003	1,744	20,591	512,892
2004	1,802	20,613	525,683
2005	1,791	20,465	533,839
2006	1,810	21,038	540,347
2007	1,833	20,967	541,780
2008	2,022	21,652	559,429
2009	2,097	22,122	569,647
2010	2,074	22,708	584,375
2011	2,200	23,179	597,187
2012	2,344	23,994	601,663

Table A.4. Regulation of rail transportation by the Federal Railroad Administration.

Year	Search Term Count	Restriction Count	Total Word Count
1997	1,566	11,931	230,445
1998	1,031	8,817	235,801
1999	1,141	10,158	275,821
2000	1,166	11,107	294,525
2001	1,190	11,409	305,867
2002	1,246	11,695	316,908
2003	1,270	11,911	324,205
2004	1,333	12,099	333,763
2005	1,418	12,857	357,244
2006	1,672	13,287	378,520
2007	1,484	13,477	376,609
2008	1,511	13,857	388,194
2009	1,534	13,740	400,758
2010	1,571	14,602	419,594
2011	1,637	14,846	429,712
2012	1,782	16,540	468,101

Table A.5. Regulation of rail transportation by the Federal Motor Carrier Safety Administration.

Year	Search Term Count	Restriction Count	Total Word Count
2000	462	4,646	176,487
2001	462	4,833	177,788
2002	462	5,395	195,208
2003	463	5,403	199,443
2004	484	5,486	209,193
2005	477	5,285	214,537
2006	494	5,521	217,623
2007	505	5,550	220,383
2008	520	5,550	220,383
2009	543	5,850	230,376
2010	526	5,924	238,168
2011	529	6,206	246,215
2012	548	5,824	248,118

Table A.6. Aggregate regulation of rail transportation by OHSA, MHSA, PHMSA, FRA, and FMCSA.

Year	Search Term Count	Restriction Count	Total Word Count
1997	3,644	90,595	1,990,297
1998	3,066	83,129	1,974,634
1999	3,208	84,802	2,027,382
2000	3,674	90,230	2,214,148
2001	3,794	95,501	2,273,611
2002	3,965	96,384	2,314,840
2003	4,037	96,982	2,339,633
2004	4,171	97,325	2,379,447
2005	4,260	97,453	2,420,312
2006	4,542	99,369	2,467,575
2007	4,390	100,261	2,480,772
2008	4,615	101,921	2,542,928
2009	4,750	103,858	2,590,043
2010	4,748	105,160	2,616,861
2011	4,986	107,636	2,703,758
2012	5,319	110,072	2,754,924

Acknowledgment

The author thanks Jake Jares for excellent research assistance.