Economic Analysis: Consolidation and Increasing Freight Rail Rates

Prepared for the
Rail Customer Coalition

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June 2021

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Section 1 - Summary of the Change in Railroad Pricing Practices

Escalation Consultants was retained by the Rail Customer Coalition (RCC) to analyze the change in railroad pricing practices using the last fifteen years of available data. The Analysis revealed that over the last fifteen years there has been a dramatic increase in the share of revenue the largest railroads (Class I railroads) obtain from customer's rates considered non-competitive by the Surface Transportation Board (STB)[1]. The Analysis shows that over the last fifteen years non-competitive revenue:

- Has increased dramatically, far outpacing competitive rail revenue,
- Has become the norm and is no longer the exception for rail traffic

The results of the Analysis demonstrate that the STB is regulating a very different industry now than it regulated fifteen years ago.

The Analysis covered the change in railroad pricing for eight (8) major commodity groups. They include Farm Products, Food Products, Wood Products, Pulp & Paper Products, Chemicals, Stone & Glass Products, Metal Products and Transportation Equipment. The following are some important changes in railroad pricing practices that have occurred over the last fifteen years:

- Revenue from non-competitive rates increased 230%, while revenue from competitive rates increased only 24%.
- Half the commodities had non-competitive pricing revenue increase by more than 300%.
- In 2019, half of all railroad revenue was generated from non-competitive rates, up from 27% in 2004.
- The large increase in non-competitive revenue caused the average Revenue to Variable Cost Ratio (RVC) to increase from 134% to 165% between 2004 and 2019 for shipments of the eight commodities in the Analysis.
- Real Rail Rates (Inflation adjusted rates) increased 43% while, Real Rail Expenses increased only 8.1%.

A 230% increase in revenue from rates which the STB considers non-competitive over fifteen years indicates that railroads are not worried about regulatory pushback from their pricing practices. This appears to be a major reason the largest railroads have had a 23% increase (27% in 2004 to 50% in 2019) in the portion of their rail revenue generated from rates considered non-competitive by the STB.

Rail mergers normally result in a loss of competition and the number of Class I railroads in the United States decreased from 26 in 1980 to just 7 by 2001. Since then, the Analysis shows that the average

[1] The description of non-competitive and competitive revenue is contained in Section 2 of this report. "The sources for data and method of calculating changes in railroad pricing practices."

percent increase in rail rates of the U.S. railroads was 2.4 times the rate of Inflation, as well as Long-Haul Trucking.

The results of the Analysis show that rail customers are bearing the financial burden of railroad consolidation.

If the pattern of change in railroad pricing practices continues, most rail traffic will move under railroad rates which the STB considers non-competitive. To reverse this pattern of continuous increases in the share of railroad revenue coming from non-competitive rates there will need to be an improvement in rail shipper's existing rate regulatory options.

Section 2 - Source for Data and the Method Used in Calculating Changes in Railroad Pricing Practices

All data in the analysis of railroad pricing for non-competitive and competitive revenue between 2004 and 2019 comes directly from the STB's annual Commodity Revenue Stratification Reports.

The determination of whether movements are considered potentially non-competitive or competitive in this analysis is based on the STB calculation of the RVC's for rail movements. An RVC is calculated by dividing the rate for a movement by the railroad's long term Variable Cost for the move. The rates for movements are provided to the STB by railroads and the STB calculates the railroad's long term Variable Cost for each move.

The STB provides a summary of the results from its calculations on all rail movements for each two-digit commodity code level in its Commodity Revenue Stratification Report. This is the data used in the Analysis to determine the change in railroad pricing practices between 2004 and 2019.

The calculation of RVC's is an important part of the regulatory process. For example, the STB has no authority over rates for movements with less than a 180% RVC. This is because moves with RVC's below 180% have less than an 80% markup above a railroad's long term Variable Cost. The STB considers moves with less than a 180% RVC as likely having competitive options and not in need of regulatory assistance. These moves are presumed to be competitive by the STB and revenue from these moves is referred to as competitive in this Analysis of Railroad Pricing Practices.

An RVC of 180% is referred to as the Jurisdictional Threshold as the RVC for a movement must reach this level in order for the STB to have any authority over the rate for a movement. Movements with RVC's at or greater than 180% are considered potentially non-competitive by the STB. Revenue from moves with RVC's of 180% or greater is referred to as non-competitive in this Analysis of Railroad Pricing Practices.

The STB Commodity Revenue Stratification Report breaks down the total revenue and cost for moves by RVC. Revenue and expenses are accumulated for moves:

- With RVC's at or above 180%,
- With RVC's Below 180%, as well as,
- Totals for each two-digit commodity code

The rail revenue in each RVC category was used to determine how non-competitive and competitive revenue changed between 2004 and 2019.

It is emphasized that this report is based on numbers calculated by the STB. Escalation Consultants summarized the Commodity Revenue Stratification Report data each year for the eight commodity groups in this analysis to determine the change in railroad's pricing practices between 2004 and 2019.

The source for historical rate changes is the Association of American Railroads (AAR). Rate change calculations are based on the change in rates on cents per revenue ton-mile.

Section 3 - Findings and Analysis of Changes in Railroad Pricing Practices

Escalation Consultants' Analysis of Railroad Pricing Practices shows that over the last fifteen years there has been a fundamental change in how railroads establish rates for movements. The Analysis demonstrates that rail movements with non-competitive pricing have become the norm and are no longer the exception.

The Analysis covered the change in railroad pricing for eight (8) major commodity groups between 2004 and 2019. The eight commodity groups are shown in Illustration 1. In the Analysis non-competitive revenue consists of revenue from rail moves with RVC's greater than the 180% RVC Regulatory Jurisdictional Threshold. Revenue from moves with RVC's below 180% is referred to as competitive revenue in the Analysis[2].

Illustration 1

8 Commodity Groups Included in Analysis			
STCC	Description	STCC	Description
01	Farm Products	28	Chemicals
20	Food Products	32	Stone & Glass Products
24	Wood Products	33	Metal Products
26	Pulp & Paper Products	37	Transportation Equipment

The Analysis shows the following changes in railroad pricing practices along with the location of the support for the findings.

- Revenue from rail moves with non-competitive pricing increased by an average of 230% over the last fifteen years (Illustration 2).
    - Half the eight commodities had non-competitive pricing revenue increase by more than 300% (Illustration 4).

[2] More detail on the basis of the non-competitive and competitive classification of revenue for moves is included in Section 2 of this report.

- Commodity revenue from rail moves with competitive pricing either decreased or had small increases over the last fifteen years (Illustration 2).

- Moves with non-competitive pricing generated 50% of all 2019 railroad revenue (Illustration 3).

- Chemical movements are most significantly impacted, as 68% of all Chemical revenue is generated from rail moves with non-competitive pricing (Illustration 3).
    - 64% of Stone & Glass revenue comes from potential non-competitive pricing.
    - 56% of Farm Products revenue comes from potential non-competitive pricing.

- The percentage of total revenue from moves with non-competitive pricing increased by 23% over the last fifteen years. This caused the share of revenue from moves with competitive pricing to decrease by the same 23% (Illustration 3).

- Rail mergers normally result in a loss of competition and the number of large railroads (Class I railroads) in the U.S. went from 26 in 1980 to only 7 by 2001.

- Since railroad consolidation took place, the increase in rail rates has been 2.4 times the rate of Inflation as well as the rates of railroads biggest competitor, Long-Haul Trucking. (Illustration 6)

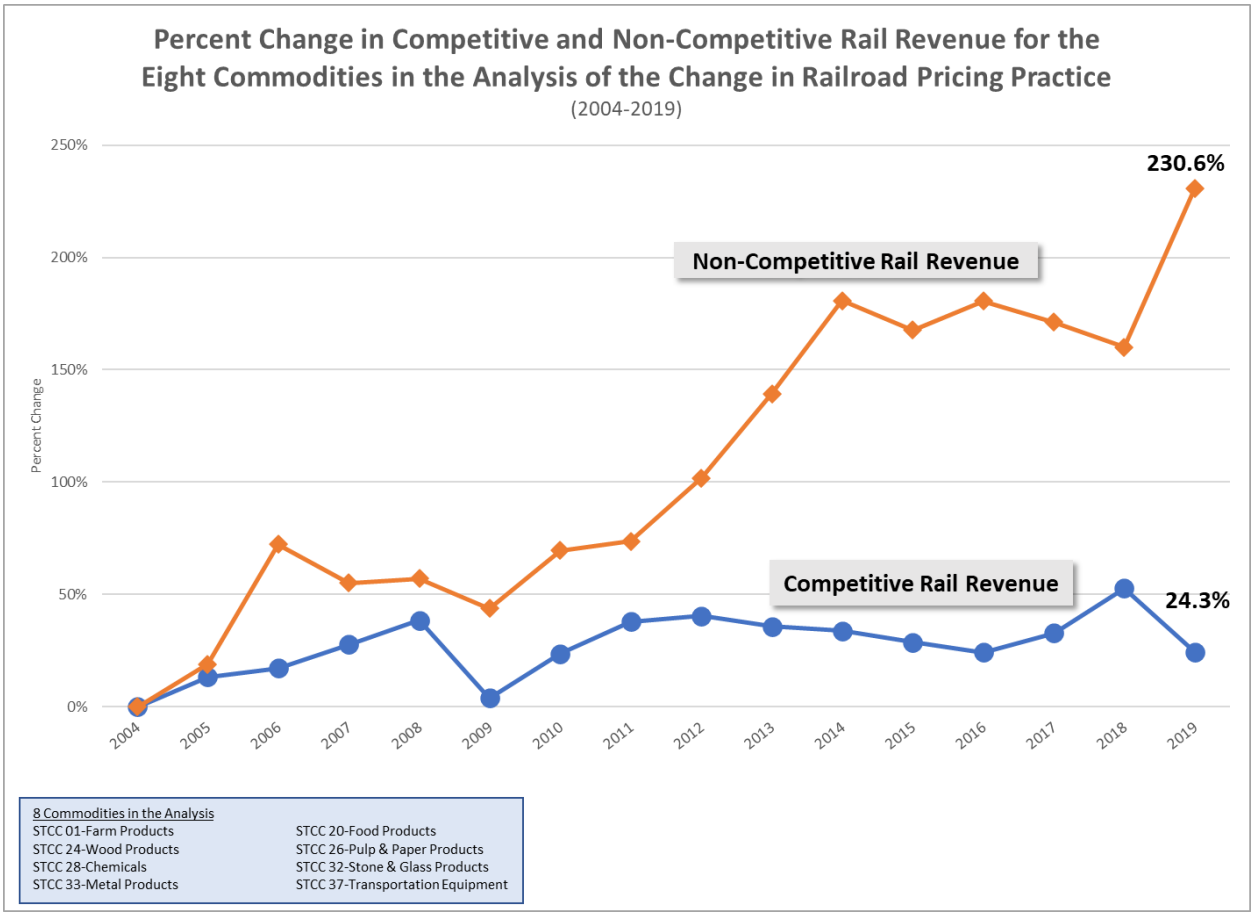
- Real Rail Rates (Inflation adjusted) increased 43%, while Real Rail Expenses increased only 8.1% (Illustration 7).

- Rail customers are bearing the financial burden of railroad consolidation.

Details from Analysis

Illustration 2 shows the cumulative percent change in the combined non-competitive revenue versus competitive revenue for the eight commodities by year. The graph shows that non-competitive revenue has consistently increased over time, while competitive revenue has had little change. The 230% increase in non-competitive revenue indicates that the STB is regulating a very different rail industry today, than it regulated in 2004.

Illustration 2



Based upon the large increase in non-competitive revenue, it would be logical to expect many rate cases before the STB. This has not happened! A 230% increase in non-competitive revenue over fifteen years indicates that railroads are not worried about regulatory pushback from generating non-competitive revenue from a large portion of their rail traffic.

The Appendix to this report contains illustrations that show the percent change in non-competitive and competitive rail revenue for each of the eight commodities in the Analysis between 2004 and 2019.

The Analysis shows that commodities are not impacted by a railroad's non-competitive pricing practices to the same degree. Illustration 3 shows that three commodity groups had non-competitive revenue representing more than 50% of all rail revenue:

- Chemicals - 68% of all revenue,
- Stone and Glass Products - 64% of all revenue; and,
- Farm Products - 56% of all revenue.

These are large commodity groups, and they have a significant impact on the total non-competitive revenue railroads make from their pricing practices.

Illustration 3

Non-Competitive Revenue as a Percentage of Total Revenue			
Commodity	2004	2019	2004 - 2019 Increase
STCC 01-Farm Products	34%	56%	21%
STCC 20-Food Products	15%	39%	23%
STCC 24-Wood Products	8%	31%	23%
STCC 26-Pulp & Paper Products	13%	33%	20%
STCC 28-Chemicals	52%	68%	16%
STCC 32-Stone & Glass Products	36%	64%	28%
STCC 33-Metal Products	17%	45%	28%
STCC 37-Transportation Equipment	13%	33%	20%
Total 8 Commodities	**27%**	**50%**	**23%**

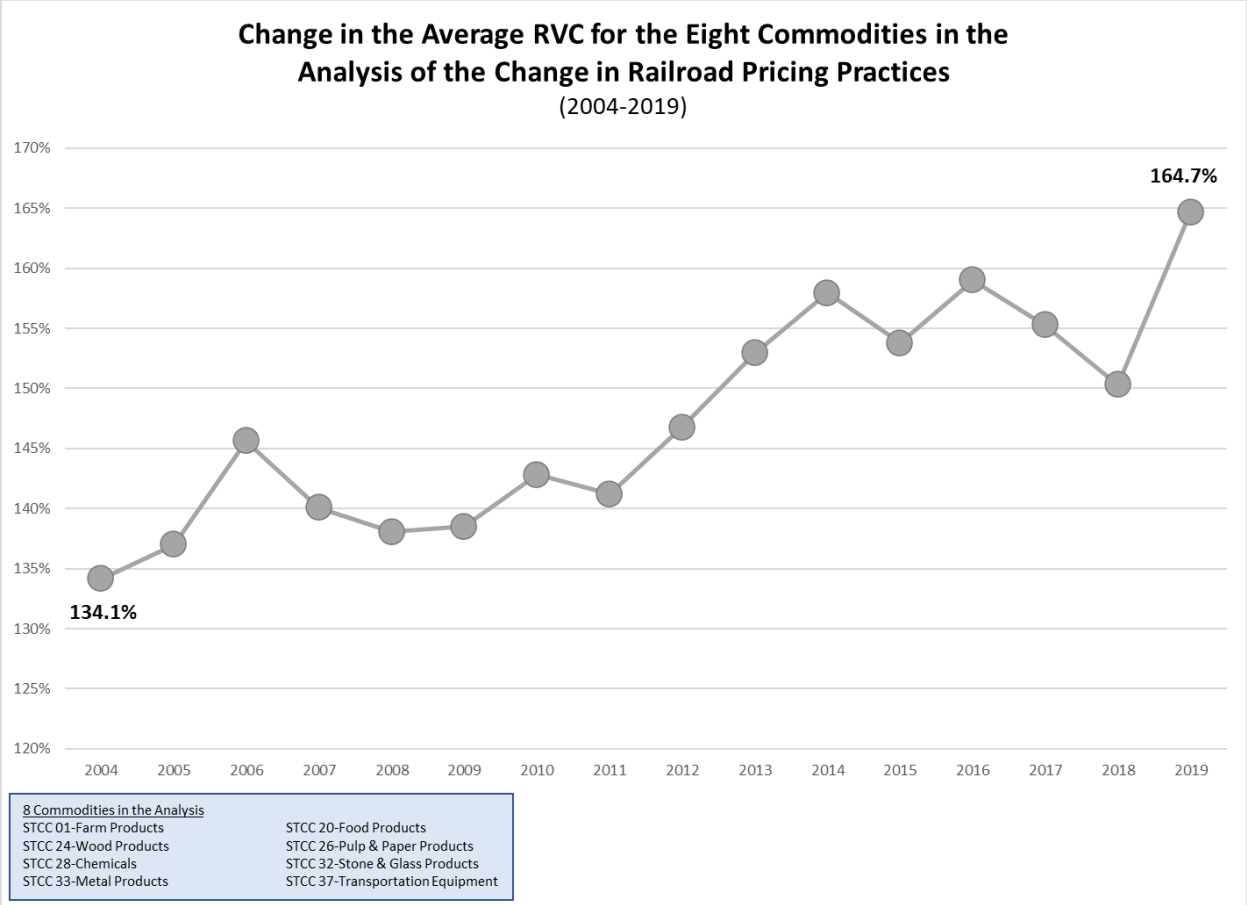
Illustration 4 shows the largest increase in non-competitive revenue occurred in commodities with the smallest percent of non-competitive revenue in 2004. Pulp & Paper, Wood, Food, and Transportation Equipment commodities make up a relatively small percentage of total rail revenue under non-competitive pricing in 2004. These commodities now have around a third of all revenue subject to railroad non-competitive pricing. The Analysis demonstrates that railroad's non-competitive pricing practices are widespread and affect more movements now than they did in 2004.

Illustration 4

Impact of Railroad Non-Competitive Pricing Practices On Commodities Previously Not Significantly Affected		
Commodity	2004 Non-Competitive Revenue as a % of Total Rev	% Increase in Non-Competitive Revenue Between 2004 & 2019
STCC 20-Food Products	15%	430%
STCC 24-Wood Products	8%	354%
STCC 26-Pulp & Paper	13%	241%
STCC 33-Metal Products	17%	335%
STCC 37-Trans. Equipment	13%	358%

The large increase in railroad's non-competitive revenue for the eight commodities in the Analysis caused their average RVC to increase from 134.1% in 2004 to 164.7% in 2019. This 34.1% increase in average RVC (164.7% to 134.7%) resulted from the 230% increase in railroad's non-competitive revenue. Illustration 5 tracks the change in the average RVC value each year between 2004 and 2019.

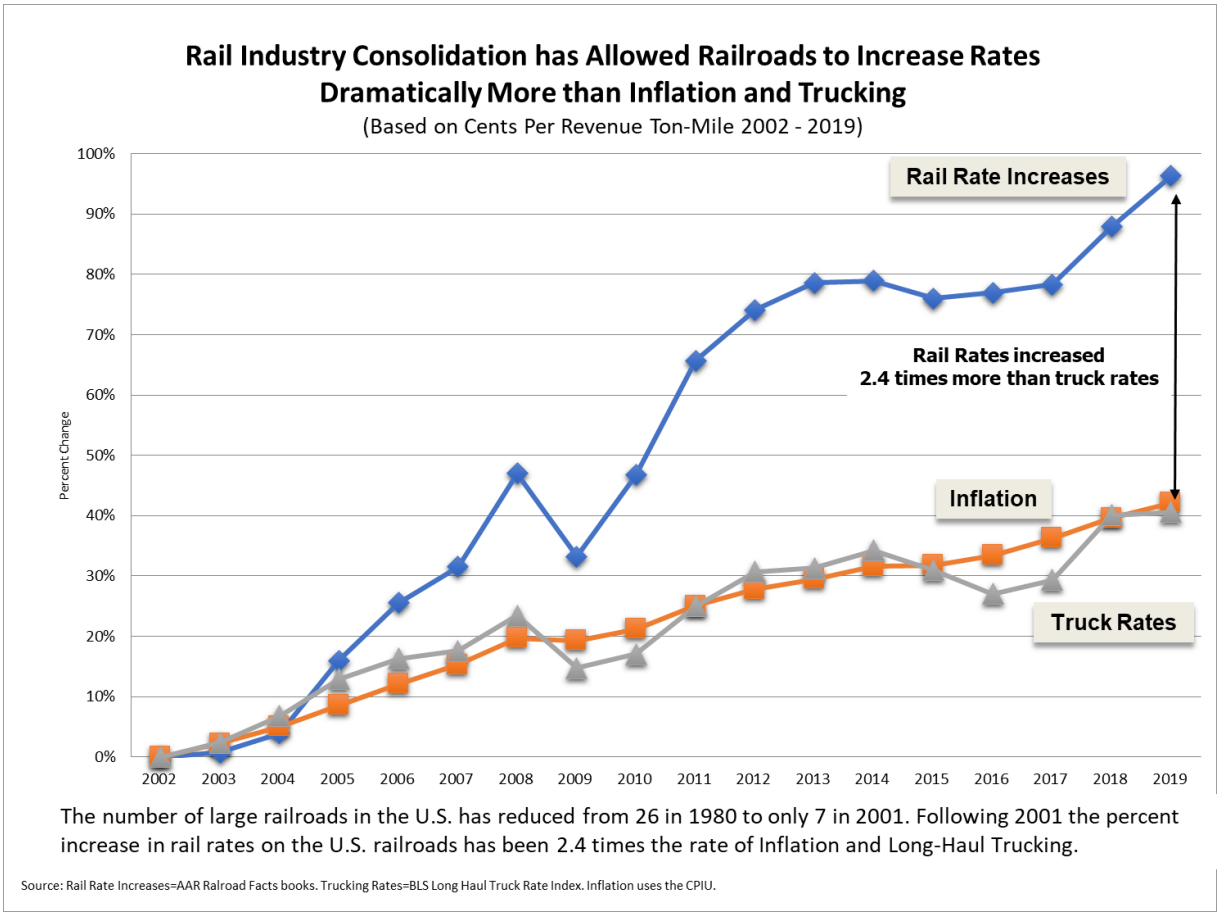
Illustration 5



Historical Change in Rail Rates Versus Inflation and Trucking

An increase of 230% in revenue from rates for non-competitive rail movements is unprecedented. To determine how reasonable railroad's rate increases have been, they were benchmarked against other relevant changes in the economy. Illustration 6 tracks the weighted average increase in average revenue per ton-mile for all commodities on U.S. railroads against Inflation and the Bureau of Labor Statistic's producer price index for the cost of Long-Distance Trucking. This shows that between 2002 and 2019 (seventeen years) Inflation and Long-Distance Trucking both increased around 40%, while rail rates (cents per ton-mile) increased 96%. The average rate increase that shippers paid to move products by rail was therefore, 2.4 times the rate of Inflation (CPI-U) or the cost of Long-Distance Trucking.

Illustration 6

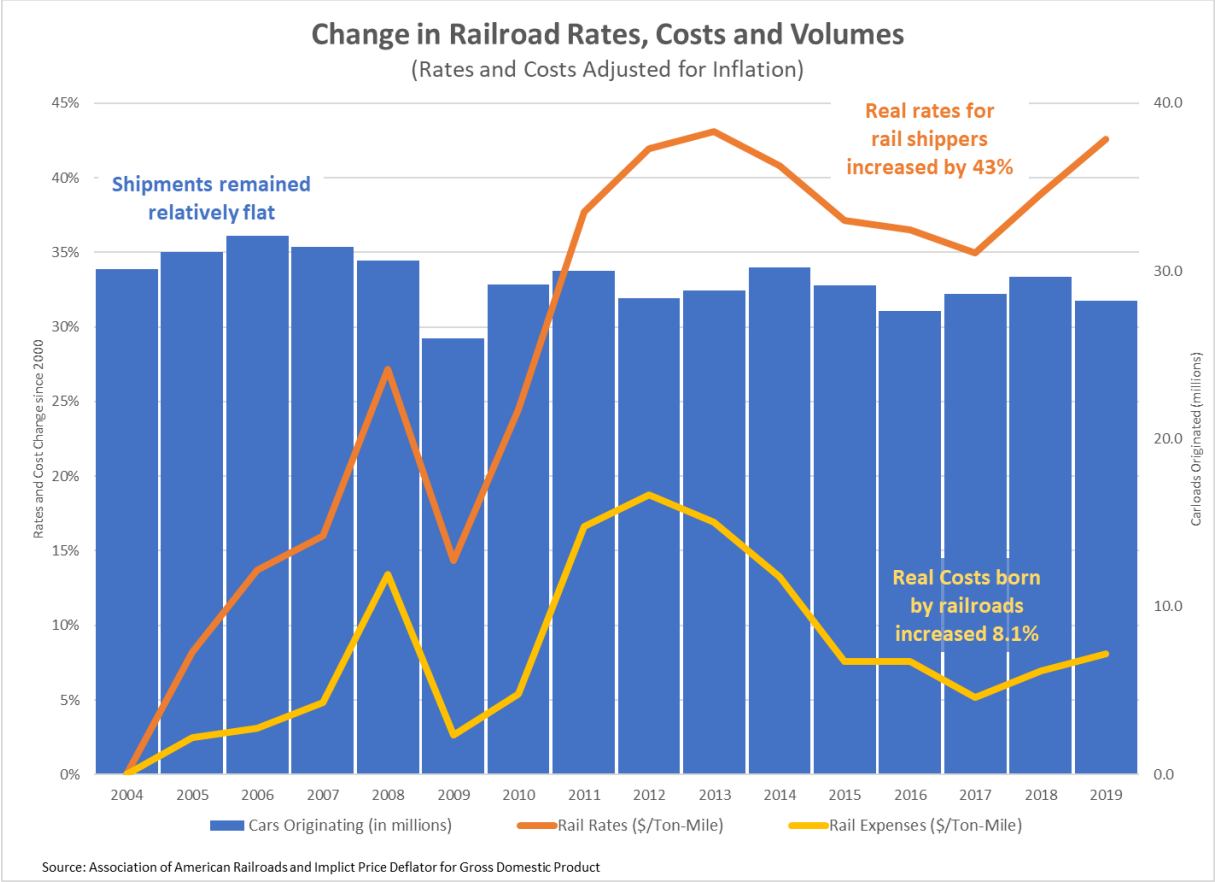


When something as important to the economy as rail freight has rate increases that are 2.4 times Inflation, as well as the cost of rail freights' primary competitor in the marketplace (trucking) this provides context for why the increase in railroad's non-competitive revenue is so large.

Another measure of whether railroad pricing practices have been reasonable is to compare their rate changes against the change in railroad's average cost of moving traffic. Illustration 7 provides a comparison for how Inflation adjusted rail rates (Real Rail Rates) have changed in relation to Real Rail Expenses. Illustration 7 shows that Real Rail Rates have increased 43%, while Real Rail Expenses have increased only 8.1%[3]. Railroad expenses have, therefore, changed similar to the overall Inflation rate in the economy, while rail rates have far exceeded Inflation. This is another measure which demonstrates railroad's ability to increase their rates to shippers far in excess of their expenses as well as overall Inflation in the economy. This results from the railroad's ability to substantially increase the share of their revenue obtained from non-competitive rates.

[3] The change in railroad's Real Rates reflect the percent change in their Inflation adjusted average revenue per ton-mile rail rate. The change in railroad's Real Rail Expenses reflects the percent change in their Inflation adjusted average revenue per ton-mile operating expense.

Illustration 7



The answer to why railroads are collecting so much more of their revenue from non-competitive rates appears to be, because they can. Rail mergers normally result in a loss of competition and the number of large railroads (Class I railroads) in the U.S. went from 26 in 1980 to only 7 by 2001. Since this time rail rates have had very large increases, resulting in an unprecedented increase in revenue they obtain from non-competitive rates.

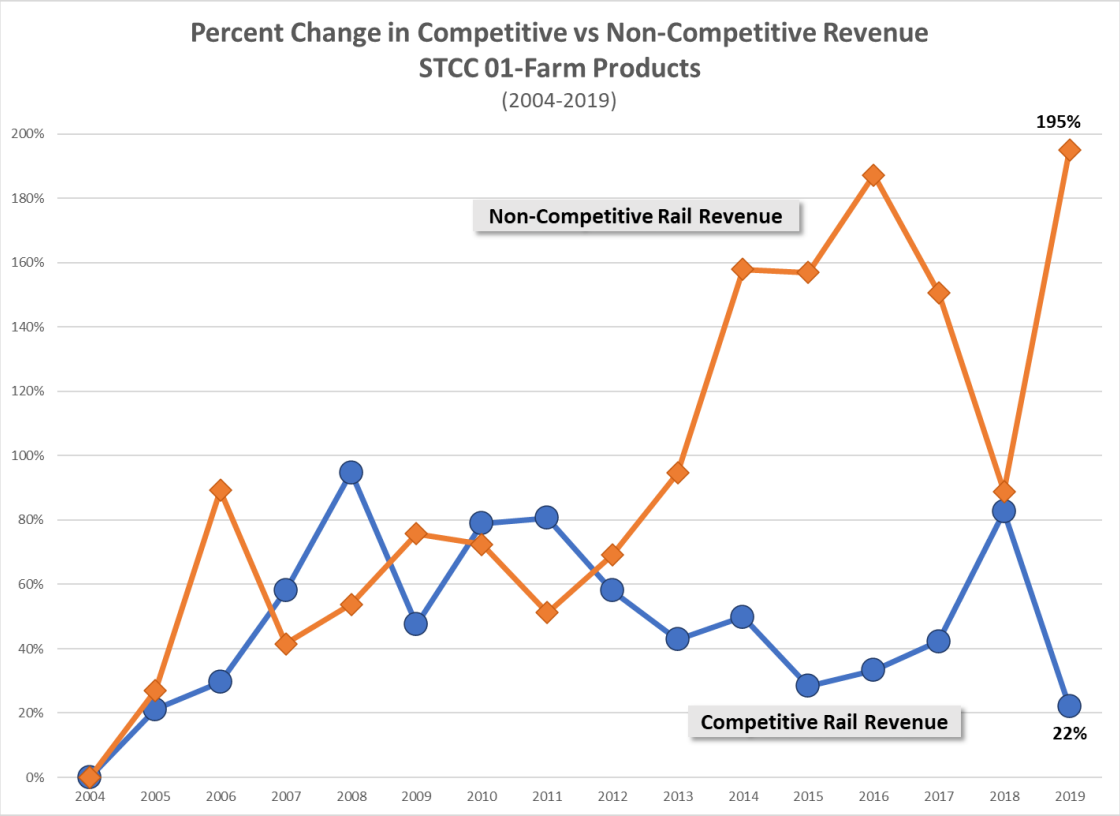
Much of the traffic moved by rail is captive to one Class I railroad. Without competition, many rail shippers have been forced to accept whatever rates railroads provide. The results of the Analysis show that rail customers are bearing the financial burden of railroad consolidation. To reverse the existing pattern of change in railroad pricing practices will likely require an improvement in rail shippers' rate regulatory options.

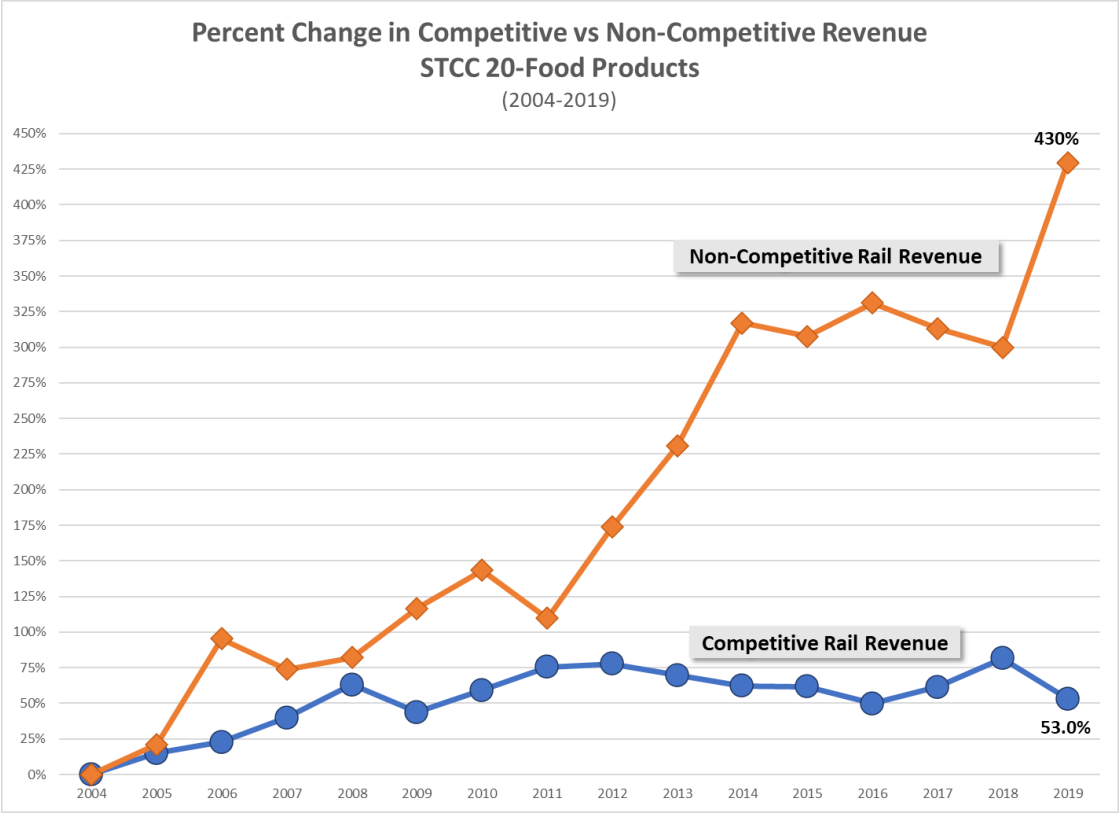
Summary

The Analysis indicates that railroad pricing practices have changed dramatically over the last fifteen years, and it appears that rail rate regulations have not kept pace with these changes. A 230% average increase in non-competitive revenue indicates that railroads are not particularly worried about existing rate regulations.

If the pattern of change over the last fifteen years continues, most of rail traffic will move under rates that generate non-competitive revenue for railroads. To minimize the financial burden of railroad pricing practices on rail shippers there will need to be more effective and less expensive methods to challenge non-competitive rail rates.

Appendix


Percent Change in Competitive vs Non-Competitive Revenue
STCC 01-Farm Products
(2004-2019)
195%
Non-Competitive Rail Revenue
Competitive Rail Revenue
22%
200%
180%
160%
140%
120%
100%
80%
60%
40%
20%
0%
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019


Percent Change in Competitive vs Non-Competitive Revenue
STCC 20-Food Products
(2004-2019)
430%
Non-Competitive Rail Revenue
Competitive Rail Revenue
53.0%
450%
425%
400%
375%
350%
325%
300%
275%
250%
225%
200%
175%
150%
125%
100%
75%
50%
25%
0%
2004
2005
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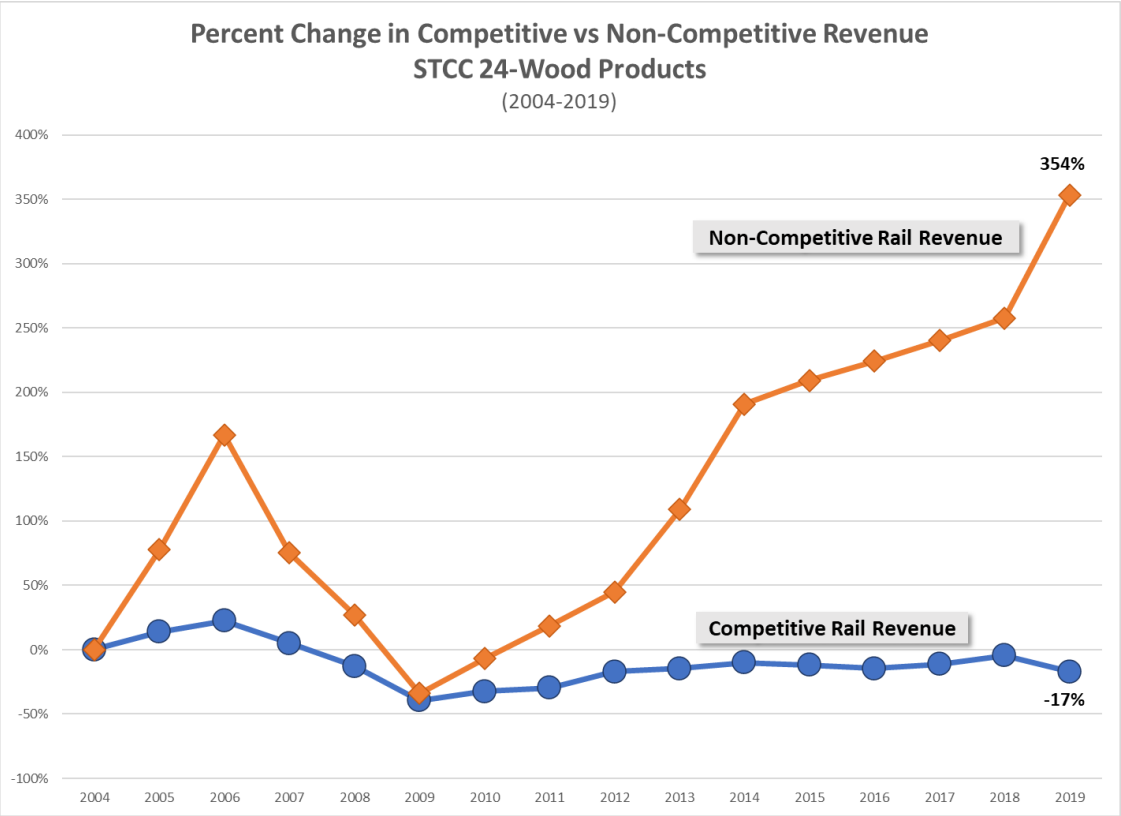
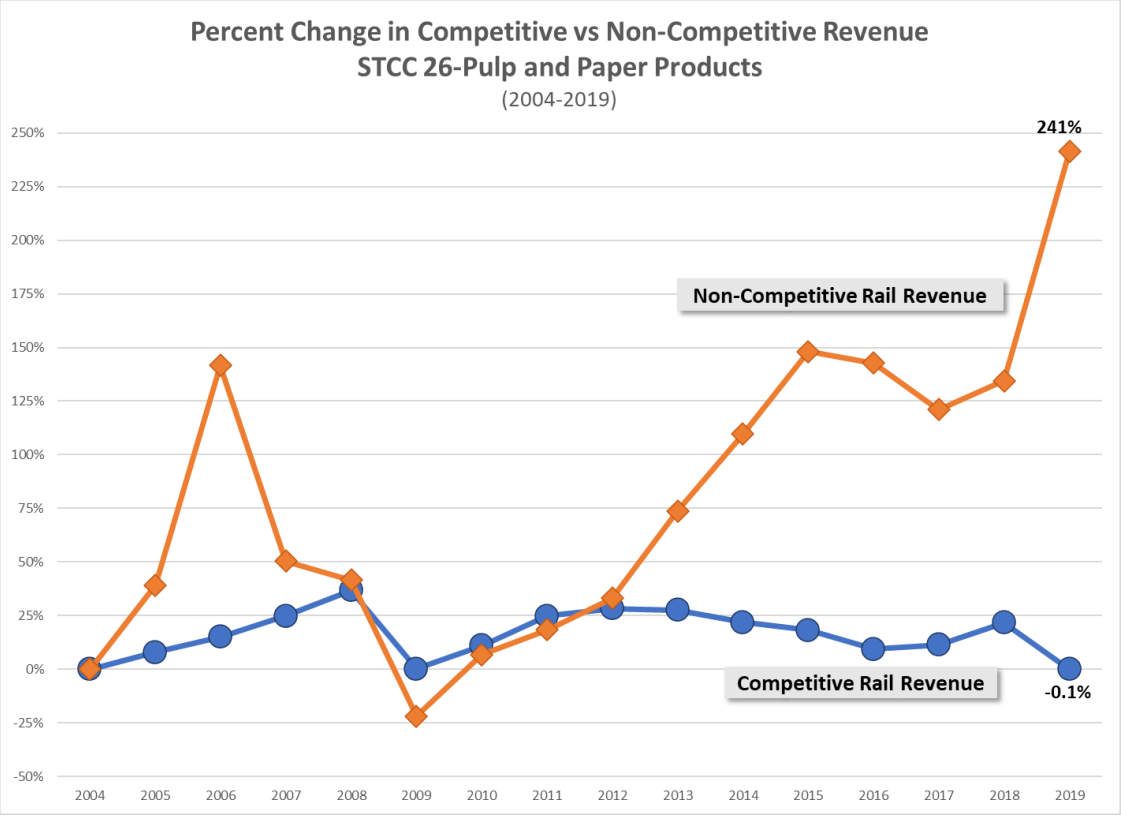
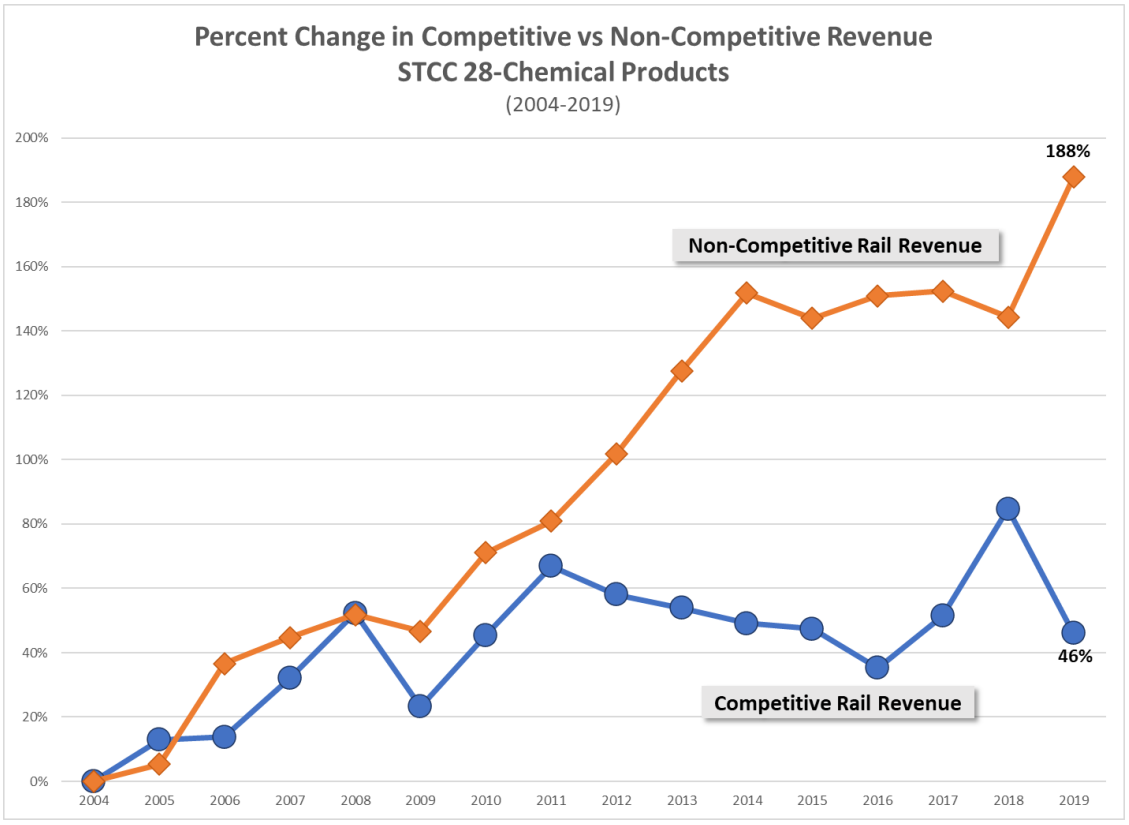
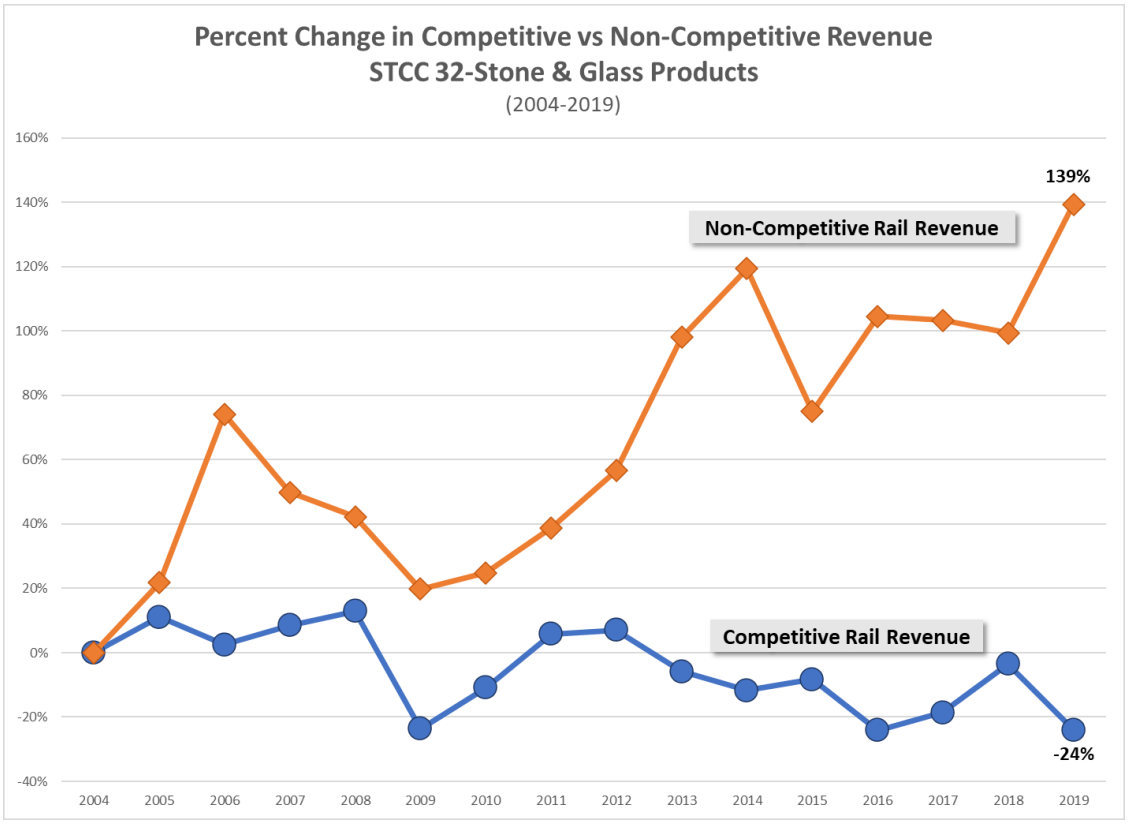
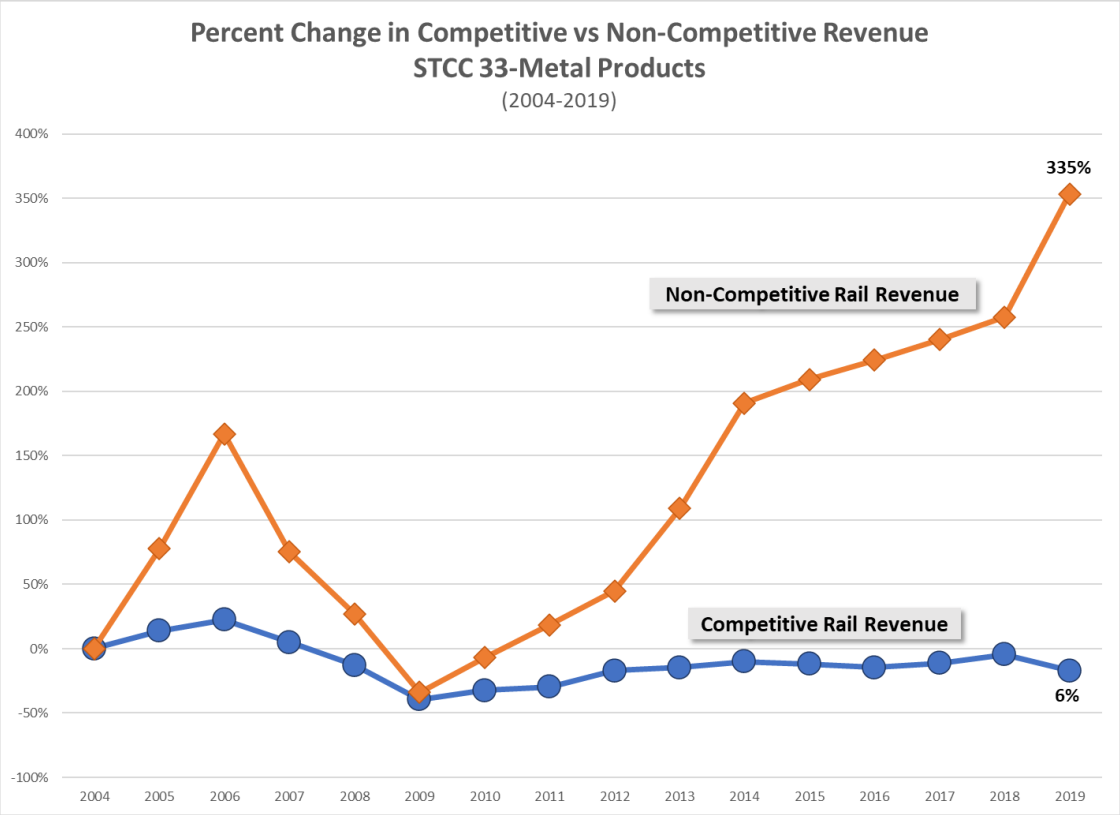
2015
2016
2017
2018
2019

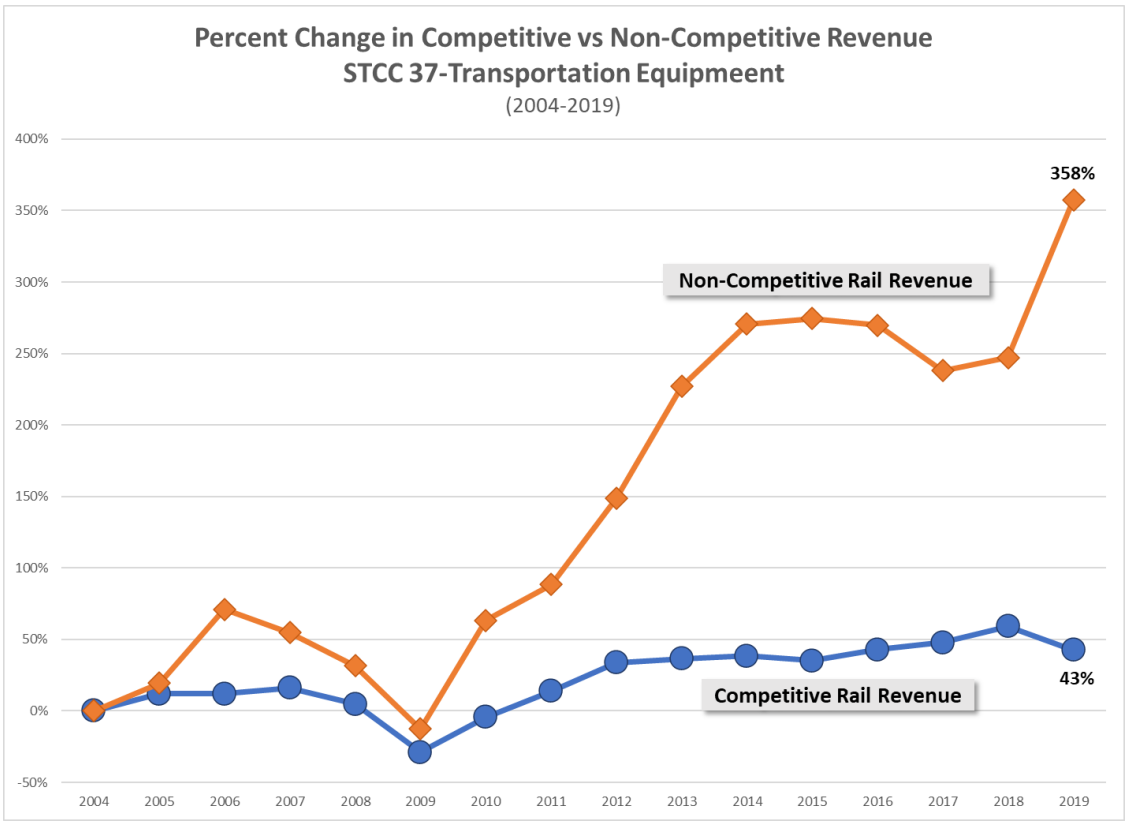

Percent Change in Competitive vs Non-Competitive Revenue
STCC 24-Wood Products
(2004-2019)
400%
350%
300%
250%
200%
150%
100%
50%
0%
-50%
-100%
354%
Non-Competitive Rail Revenue
Competitive Rail Revenue
-17%
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019


Percent Change in Competitive vs Non-Competitive Revenue
STCC 26-Pulp and Paper Products
(2004-2019)
250%
225%
200%
175%
150%
125%
100%
75%
50%
25%
0%
-25%
-50%
241%
Non-Competitive Rail Revenue
Competitive Rail Revenue
-0.1%
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019


Percent Change in Competitive vs Non-Competitive Revenue
STCC 28-Chemical Products
(2004-2019)
200%
180%
160%
140%
120%
100%
80%
60%
40%
20%
0%
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
188%
Non-Competitive Rail Revenue
46%
Competitive Rail Revenue


Percent Change in Competitive vs Non-Competitive Revenue
STCC 32-Stone & Glass Products
(2004-2019)
160%
140%
120%
100%
80%
60%
40%
20%
0%
-20%
-40%
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
139%
Non-Competitive Rail Revenue
Competitive Rail Revenue
-24%


Percent Change in Competitive vs Non-Competitive Revenue
STCC 33-Metal Products
(2004-2019)
400%
350%
300%
250%
200%
150%
100%
50%
0%
-50%
-100%
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
335%
Non-Competitive Rail Revenue
Competitive Rail Revenue
6%


Percent Change in Competitive vs Non-Competitive Revenue
STCC 37-Transportation Equipmeent
(2004-2019)
400%
350%
300%
250%
200%
150%
100%
50%
0%
-50%
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
358%
Non-Competitive Rail Revenue
43%
Competitive Rail Revenue