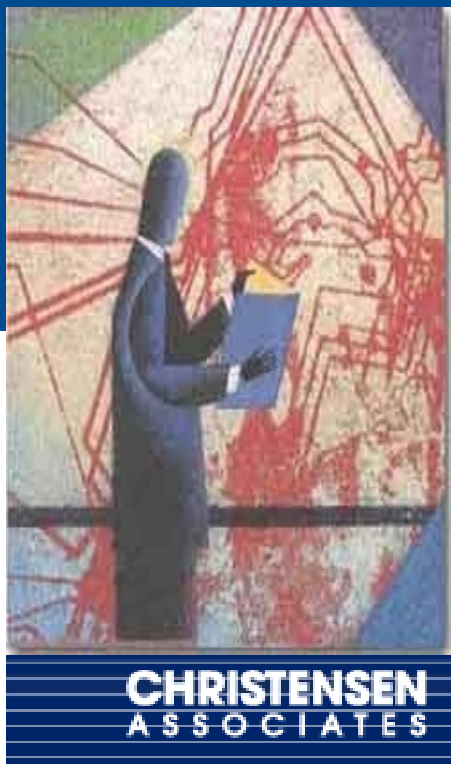


Study of Competition in the Railroad Industry and Analysis of Proposals to Enhance Competition

June 2008 Progress Report



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Outline

- ❑ Project background
- ❑ Project requirements and timeline
- ❑ What we have done
 - Qualitative research
 - Quantitative research
- ❑ What we are doing
 - And where we are going

Project Background

- ❑ *From GAO Report* – Are recent rate increases the result of capacity constraints or exercise of market power?
- ❑ As a follow up to the GAO study, the Board issued an RFP to study this and related issues, including
 - Assessment of competition and captivity
 - Capacity and investment
 - Service quality
 - Policy proposals
- ❑ The Christensen Associates team was selected to conduct an independent, rigorous study

Requirements from the Board's RFP

- ❑ Initial qualitative research phase
 - Stakeholder input
- ❑ Quantitative research phase
 - Develop quantitative research plan
 - Assess competition and capacity issues
 - Investigate impact of competition and capacity constraints on service quality
 - Analyze economics of proposed policy reforms
- ❑ Prepare Final Report

Project Timeline

- ❑ Phase 1- Qualitative Research
 - Through Spring (Complete)
- ❑ Phase 2 - Quantitative Analysis
 - Now through Summer (Ongoing)
- ❑ Phase 3 – Report
 - August through October

Final Report November 1, 2008

What We Have Done Qualitative Research

- ❑ Interviews and other stakeholder feedback
- ❑ Institutional research
- ❑ Presentations and meetings
- ❑ Summary of qualitative research findings will be a chapter in our Final Report

Stakeholder Input Process

- ❑ Input from various stakeholders, including
 - Shippers
 - Railroads
 - Industry analysts
 - Policy makers and regulators
 - Other interested parties

- ❑ Input obtained through various means
 - Over 60 interviews (in-person and phone)
 - Electronic forum on our website
 - Written comments via e-mail

Use of Stakeholder Input

- ❑ Findings from qualitative phase of project used in formulating empirical research questions
- ❑ We gained tremendous knowledge and insights
 - Perspectives on the workings of the industry
 - Perspectives on policy issues
- ❑ We thoroughly considered all input received
- ❑ In Final Report, we will summarize qualitative findings, including those where
 - Issues are outside the scope of our study
 - Data limitations prevented thorough examination

What We Have Done

Quantitative Analysis

- ❑ Specify research issues and empirical methods
 - Incorporate qualitative research findings
 - Literature search and review
- ❑ Data collection
 - Complete for “primary” datasets
- ❑ Research plan
 - Our “roadmap” for what we are currently doing and will be doing throughout the summer

What We Are Doing Quantitative Research Plan

- ❑ Macro overview of industry
- ❑ Econometric analysis
 - Industry cost structure
 - Disaggregate pricing model
- ❑ Primary research issues
 - Identification of captivity
 - Existence and exercise of market power
 - Factors affecting service quality
 - Factors affecting capacity and investment behavior
 - Economic analysis of policy proposals

Macro Overview

- ❑ Purpose - set the stage for quantitative analysis, provide context
- ❑ Starting point is reconstruction and update of GAO analysis
- ❑ We are extending GAO analysis in two important respects
 - Use of alternative price index methods (e.g., BLS) and examination of differences
 - Develop economic measures of shipper captivity

Macro Overview

- ❑ In addition to rate and captivity trends we are examining
 - Industry input price and productivity trends relative to rate trends
 - Industry profitability trends relative to financial benchmarks

- ❑ We are also examining these macro trends relative to our quantitative results, including
 - Capacity and investment
 - Cost characteristics (e.g., economies of density)

Econometric Analysis

- ❑ Two types of models in economic literature
 - Industry cost function estimated with R-1 data
 - Disaggregate pricing model estimated with Waybill data
- ❑ Industry cost function
 - Cost/production characteristics of industry
 - Account for firm-specific effects
 - Test for various economies – scale, scope, density
 - Insights into economically feasible market structures
- ❑ Disaggregate pricing model
 - By O-D pair, commodity, etc.
 - Investigate pricing in specific markets

Econometric Analysis

- ❑ Each type of model has limitations
 - Industry cost function of limited use for market-specific analysis
 - Disaggregate pricing model limited by need to make assumptions on firm's cost characteristics
- ❑ One of our innovations is attempt to synthesize models to address these limitations
 - Develop methods to produce estimates of commodity-specific marginal costs
 - This will allow market-specific analysis of market power issues and effects of proposed policy reforms

Econometric Analysis

- ❑ Differences from prior studies
 - Use of confidential, unmasked Waybill data to “drill down” to shipment-specific analysis
 - Supplementing rail data with Geographic Information Systems (GIS) and other data
 - Extensive mapping capabilities
 - Market definitions down to county level (and often lower)
 - Synthesize modeling approaches
- ❑ Enhancements to our econometric analysis
 - We are making liberal use of maps, charts, graphs
 - We may also use case study approach

Service Quality

- ❑ Proposed research questions included
 - Current state and trends in service quality
 - Impact of capacity constraints on service quality
 - Relationship of competition and market power to service quality
- ❑ We have heard a lot about service quality performance (and it will be in Final Report)
 - Over time
 - Relative to price, captivity
- ❑ However, rigorous empirical investigation of these issues is limited by lack of available data

Service Quality – Data Limitations

- ❑ Primary data set is weekly Rail Performance Reports
 - We have complete panel back to 1999 for each reporting Class 1
 - Primary measures are terminal dwell time and train speed
- ❑ Other possibilities
 - R-1 schedule 720, Track and Traffic Conditions
 - Case study approach
- ❑ It has been suggested to us that the Board should require reporting of service metrics that many shippers and railroads keep

Capacity and Investment

- ❑ Two general approaches to evaluate railroad capacity and utilization
 - Transportation flow modeling (e.g., Cambridge Systematics study)
 - Advantage of detailed view of network
 - But no account of economic incentives that affect capacity and demand
 - Econometric modeling of cost functions
 - Advantage of accounting for economic incentives
 - But largely limited to macro, network-wide view

Capacity and Investment

- ❑ We are relying primarily on cost function approach
 - We will attempt to apply at more disaggregate level
- ❑ “Capacity equation” derived from cost function results
 - Comparison of investment’s value of marginal product to its market price (“Tobin’s q”)
 - Indicator of investment incentive
 - Indicator of shortage, excess or optimal capacity
 - Explicitly recognizes capacity depends on substitutability of other inputs and technology

Capacity and Investment

- Augment with other information and analysis
 - Identify and analyze select congestion points and corridors. For example:
 - Chicago
 - PRB corridors (West) and I80 corridor (East)
 - Elements of Cambridge Systematics study
 - Evaluation of demand projections to assess future needs
 - Extensive use of maps, charts, etc

Economic Analysis of Policy Proposals

- ❑ Board RFP requests analysis of proposals mentioned in GAO study
 - Reciprocal switching, terminal agreements, trackage rights, bottleneck rates, paper barriers
 - STB reforms
 - Increased use of simplified guidelines and arbitration
 - Alternative cost methodology to SAC
 - Other potential candidates
 - Investment tax credit

Economic Analysis of Policy Proposals

- ❑ Focus of economic policy analysis is to assess economic benefits and costs
 - Effect on economic efficiency
 - Measurement of distributional effects
 - Per RFP, GAO – examine effects on railroad profitability and investment incentives
 - No judgment on equity effects
- ❑ Our assignment is to evaluate, not recommend proposals
 - Provide meaningful information for policy debates

Economic Analysis of Policy Proposals

- ❑ Our quantitative analysis provides a basis for assessing industry structure and performance, including
 - Extent of captivity
 - Extent and exercise of market power
 - Industry production technology and cost structure
 - Investment requirements and incentives
- ❑ This assessment provides an initial “filter” for evaluating economic effects of proposals

Economic Analysis of Policy Proposals

- Our evaluation of economic effects will consider
 - Our assessment of industry structure and performance – i.e., the “filter”
 - Simulations based on our empirical results
 - Price and output effects (i.e., economic efficiency)
 - Distributional effects (i.e., shippers and railroads)
 - Investment incentives
 - Results and/or inputs from other analyses

Recommendations for Future Research and/or Data Collection

- ❑ We are compiling a list of important issues that merit further study
 - Some are outside the scope of our study
 - For some, data are not available to adequately analyze

- ❑ Examples of important issues where analysis is limited by data availability
 - Service quality
 - Cost shifting
 - Shipper access to rail networks

Summary

- ❑ Our research agenda includes
 - Ambitious set of questions
 - Implementation of methodological innovations
- ❑ We are in the process of estimating econometric models
 - We are linking this analysis to unique, detailed geographic analysis of shipments
- ❑ A number of people and organizations have been extremely helpful and cooperative

Summary

- ❑ Our primary goal: produce an academic-quality study that is a useful tool for all stakeholders
 - Theoretically rigorous
 - Accessible and meaningful to non-economists
 - Liberal use of maps, charts, graphs
 - We may also make use of case study approach
- ❑ Application to policy analysis is a critical aspect of this goal

Study Website

www.LRCA.com/railroadstudy

- ❑ Allows project team to provide information to stakeholders about the study
- ❑ Allows stakeholders to provide information to the project team
 - Electronic forum and e-mail access to study team