

Reading Guide: *Merger Retrospectives: Miller and Coors Merger (Beer)*

This reading guide helps both non-presenters and presenters prepare for class. It offers broad and specific questions to spark critical thinking when engaging with required reading (RR). These focus your attention on the most important parts of the required readings, which are often lengthy and include a mix of not-so-important and *crucial* parts. These get you thinking about important concepts and looking for connections across readings and other course materials. Except when otherwise noted, references are to the first required reading: Ashenfelter et al (2015). This guide ends with suggested goals and advice for the presenting team.

Broad Questions:

- A. What is the key research question the authors of the paper seek to answer?
- B. Does this paper use a DiD (difference-in-difference) approach? Explain.
- C. How to interpret the key results in Table 4? (Note: This requires remembering how to interpret regression coefficients when variables have been logarithmically transformed and when interaction terms are used *and* being very careful to understand the units of measurement of the variables.)
- D. Exactly which empirical results are reported in the abstract of the paper? How are they computed?
- E. What is the importance of the short-run versus long-run to the analysis?
- F. What is the importance of geographic variation to the authors' empirical approach? To the interpretation of the results?
- G. How does $\text{sim}\Delta HHI$ differ from the predicted change in the HHI according to a Bertrand merger simulation?

Specific Questions:

- 1. Who are the authors of the RR? How may this affect their views?
- 2. What can we learn (or not learn) from Figure 1?
- 3. What does Figure 4 show? (Note: Focus on the two graphs in the top row and *not* the two in the bottom row. The discussion on page 340 is just talking about simple regression (one x variable) versus multiple regression (in this case, two x variables). However, the idea of running regressions *on* residuals is likely more confusing to people in our class than illuminating. However, aside from the potentially confusing idea of thinking about a multiple regression as a simple regression using the residuals from another simple regression, the rest of discussion fits well into our course.)
 - a. The vertical axes of the top two graphs are labelled incorrectly. The NBER working paper version of the article gives the correct labels: % change in price. How can you tell that the labels cannot possibly be correct in the RR?
 - b. Also, the horizontal axes are not well labelled in the two figures on the left. It would be clearer if they used the label $\text{sim}\Delta HHI$, which they have formally defined, rather than "predicted ΔHHI ."

Why would that be clearer? How could someone (reasonably) misunderstand the meaning of “predicted Δ HHI”?

- c. Finally, the top-right graph in Figure 4 would benefit from specifying the units of measurement for the horizontal axis. What are those units?
 - d. Now that we’ve clarified the axes, what can we learn from Figure 4?
 - e. What are the limitations of this analysis? Why do the authors go on to do a more complicated empirical analysis?
4. What are the key limitations of the IRI data used in conducting this merger retrospective study? How should the results be interpreted in light of these limitations? (Note: This requires a critical reading of the article, not just reporting what the authors say. Also, make sure not to skip over the footnotes, including 13 and 14.)
5. On page 330 Ashenfelter et al state “Previous studies have been unable to directly test whether efficiencies change pricing because of a lack of data on how mergers changed determinants of variable costs.” What is special about the data available for this study?
6. How do marginal cost savings differ from fixed cost savings in terms of the impact on post-merger pricing?
7. How does their overall empirical approach fit into the various methods we discussed in class for addressing endogeneity?
8. How are the market shares in Table 1 computed? How should they be interpreted (i.e. market shares of what)? What are the limitations of the Table 1 numbers? Are there alternate sources of data that would be better?
9. Why does Equation (1) on page 335 provide a measure of the change in HHI? (Hint: See footnote 18 in http://www.justice.gov/atr/public/guidelines/horiz_book/15.html.) Is this the same as the change in HHI that would be simulated using a merger simulation spreadsheet?
10. Why did they collect local labor market data?
11. How are the three key variables in the empirical analysis constructed?
12. Consider Equation (3) on page 340.
 - a. If there were no missing data, how many observations are there to estimate this equation?
 - b. How many dummy variables does it include?
 - c. What does it mean that there is no i or m subscript on the two key parameters: β and γ ?
13. On page 340 the authors state “the coefficient γ measures the percentage change in price associated with reducing the distance to the nearest Coors brewery by 1000 miles.” How can you make this statement more

precise after reviewing “Logarithms in Regression Analysis”

(http://homes.chass.utoronto.ca/~murdockj/eco220/logarithms_in_regression_analysis_with_Asiaphoria.pdf)?

14. What are the relevant omitted (reference) categories for Columns (2) – (5) of Table 4? How to interpret coefficients for the included categories? (Hint: Make sure to carefully read the notes immediately below the table.)
15. What kind of sensitivity analyses may be helpful in assessing the empirical results?
16. How may measurement error in $\text{sim}\Delta HHI$ and $\Delta \text{distance}$ affect the results? Why might there be measurement error?
17. What does the estimation of Equation (4) on page 342 seek to accomplish?
 - a. How does this affect the interpretation of the estimation results from Equation (3)? Make reference to Figures 5 and 6.
 - b. There is a typo in Equation (4). The summations should go to 42, not 30. How can you realize that typo given the other information provided?
18. Does the discussion of Figure 5 in the last paragraph on page 342 match the actual figure?
19. Consider the paragraph that starts “We obtain point estimates...” on page 343. Do the “short-run” and “long-run” the authors define match up well with Figures 5 and 6?
20. Figure 6 is not presented as clearly as it could be.
 - a. It is missing a label on the vertical axis. What should it be?
 - b. How would adding a vertical line for the merger announcement date and adding a vertical line marking the difference between the short-run and long-run (post-merger) clarify things for the reader? (Hint: The presenting team might consider showing a version of this figure with some more labelling and walking the class through what it shows.)
 - c. Does Figure 4 relate to the prices of all beers or just the merging parties’ beers?
21. On page 343 the authors state “The effect of the increase in concentration grew to 1.5% in the first year and a half after the merger was consummated.” There is a typo. What should 1.5% be instead? Show your work. (Hint: The other numbers in that paragraph are all correct. If you can get those, you can get this one.)
22. Consider the important paragraph on page 344 that starts “The key identifying assumption...” How does this relate to the issues of observational data and endogeneity that we discussed in class? What happens to their analysis if this assumption is violated?
23. What does Footnote 30 mean?
24. While no oligopoly model is discussed, which would better fit the brewing industry Cournot or Bertrand?

25. Figure 7 would also benefit from some more labelling.
- How should the two graphs be titled?
 - How should the horizontal axes be labeled?
 - How should the vertical axes be labelled?
26. What important information does Figure 7 convey?
27. On page 345 the authors state “The implied price increase was only .3% and the t -statistic less than 1.” There is a typo. What should .3% be instead? Show your work. (Hint: The other numbers in that paragraph are all correct. If you can get those, you can get this one.) (Note: The source of this typo can be determined: .3% is consistent with the earlier estimation results reported in the NBER working paper version of this research. The authors updated the table but forgot to update this one number in the text that explains what the table shows.)
28. How to interpret the key results in Table 5? Further, in discussing the results in Table 5 on page 345 the authors state “there is no detectable difference in the merging firms’ response to the reduction in distance than from rivals.” Does this result make sense?
29. (Note: This is directly targeted at the presenting team.) Remembering that the DOJ challenged the 2008 merger of Anheuser-Busch and InBev because of concern about three regions in upstate New York (Buffalo, Rochester, and Syracuse), does the analysis of Ashenfelter et al (2015) (beer) suggest that there are no specific geographic markets where the Coors-Miller deal may have caused substantial price increases? What about a normative question of fairness when a merger has heterogeneous effects across geographic markets?
30. How does the approach in Ashenfelter et al (2015) (beer) compare with some earlier readings in our course: Ashenfelter and Hosken (2008), Ashenfelter and Hosken (2010), Hosken et al (2011)?
31. (Note: This is directly targeted at the presenting team.) Considering the supplemental reading – 2013 *Complaint* against Anheuser-Busch Inbev (ABI) and Grupo Modelo (Modelo) – what are the key differences/similarities between the *economic assessment* of the Miller-Coors deal and the ABI-Modelo deal?
32. Why does the change in concentration (ΔHHI) vary across geographic markets? In other words, what kinds of underlying factors would cause variation?
33. On page 344 the authors say “The key identifying assumption for our approach is that there are no time-varying and market-specific factors correlated with price and the predicted increase in concentration or the reduction in distance to the nearest Coors brewery.” What is another possible example aside from the one they go on to give?
- (Note: This is directly targeted at the presenting team.) Would the types of examples on pages 16 – 17 of the 2013 *Complaint* against ABI and Modelo (California, Texas, New York City) raise any concerns about the identifying assumption?

34. (Note: This is directly targeted at the presenting team.) Considering pages 10 – 11 of the 2013 *Complaint* against Anheuser-Busch Inbev (ABI) and Grupo Modelo (Modelo), what if the Miller-Coors deal resulted in a uniform nationwide increase in prices? Would this be captured by Equation (3) in Ashenfelter et al (2015) (beer)? How?
35. (Note: This is directly targeted at the presenting team.) Would a map showing the brewery locations of Miller and Coors be helpful in understanding key economic arguments in this case? Would also mapping the IRI regions in the Appendix be helpful?
36. (Note: This is directly targeted at the presenting team.) What is the history of consolidation in the U.S. brewing industry in the last 15 years? Entry?
37. (Note: This is directly targeted at the presenting team.) Is the fact that the Miller-Coors deal is a joint venture (i.e. not a merger) relevant to the economic analysis of whether the deal substantially lessens competition?

Suggested Goals and Advice for the Presenting Team:

Suggested goals for the presenting team: *Help the class achieve a deeper understanding of this long empirical paper by carefully explaining key details and highlighting the bigger picture and links to other course materials.* The suggested goals and the broad questions are meant to help you organize your team presentation in a coherent manner. In contrast, the specific questions are *not*. In other words, all members of your team should be fluent with the specific questions but your presentation should not be explicitly organized around them. Also, the presenting team is expected to read and study the supplemental readings and engage in independent research into the industry to add depth to the presentation. In the past, teams that have attempted to divide the presentation by assigning team members subsets of specific questions or by assigning team members some subset of the required/supplemental reading have ended up with an incoherent presentation. A successful approach is to truly collaborate so that you all fully understand all parts of your team's presentation and how everything fits together.