

# The Effects of Vertical Arrangements in a Vertical Supply Chain\*

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## **Abstract**

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JEL classification: L13; L40; L41; L42

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\*The analysis and conclusions set forth are those of the authors and do not indicate concurrence by other members of the Board research staff, by the Federal Reserve Board of Governors, by the Federal Trade Commission, or by its Commissioners.

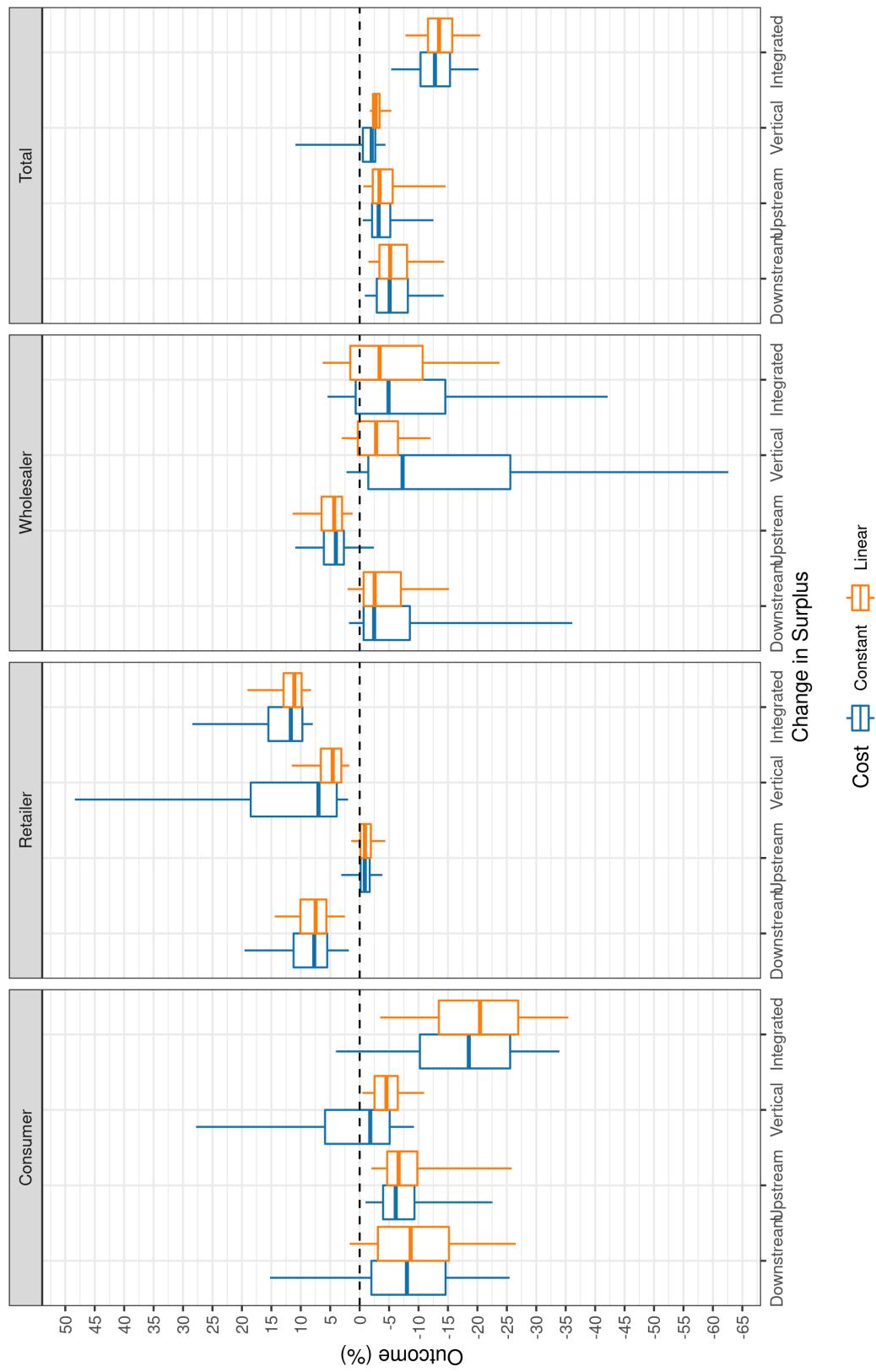
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# **1 Introduction**

## The Distributions of Merger Outcomes

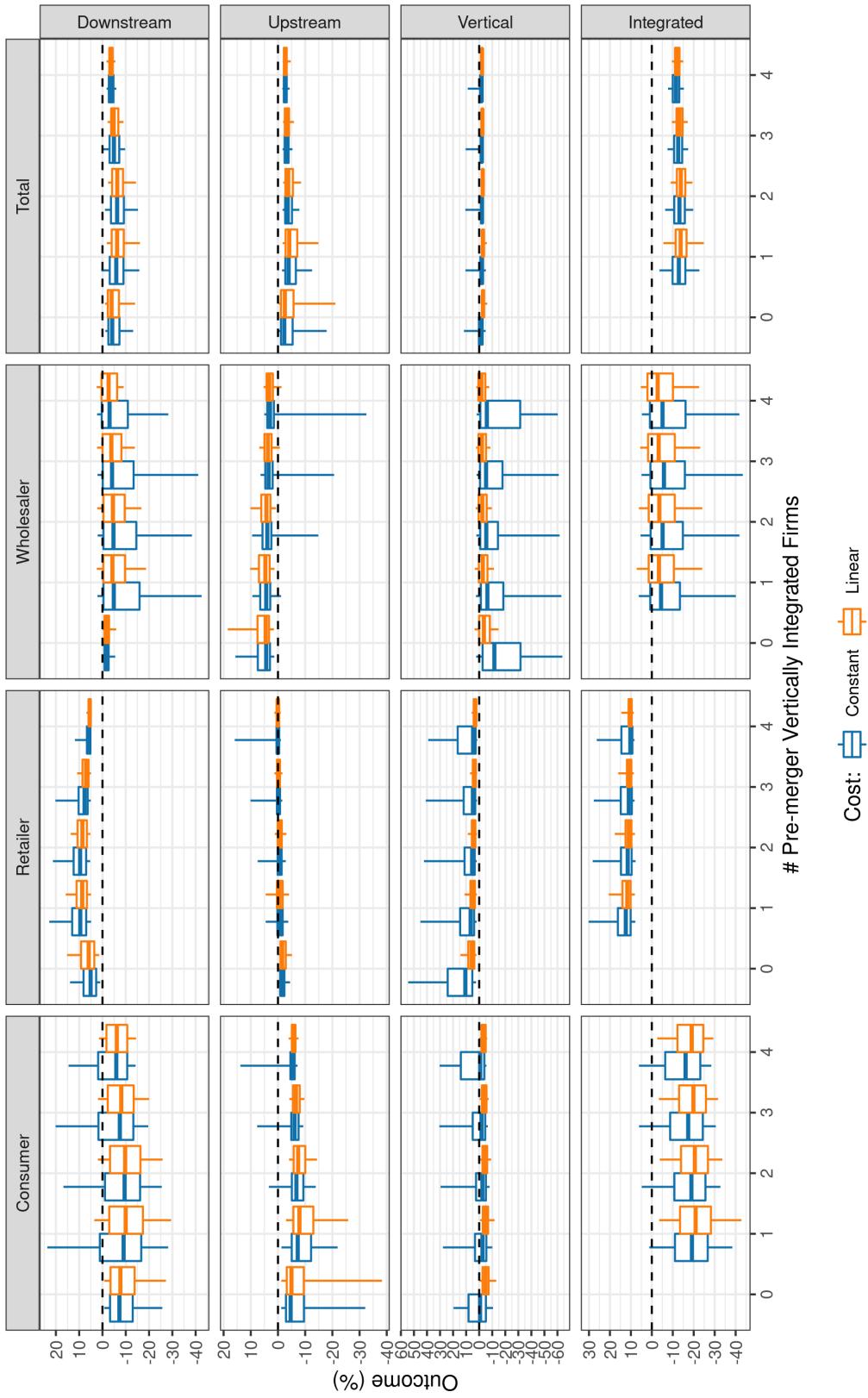
Outcomes are reported as a percentage of pre-merger total expenditures.



**Figure 1** The figure displays box and whisker plots summarizing the extent to which mergers affect consumer, retailer, wholesaler, and total surplus. Each blue box depicts the effects assuming that retailers are playing a Bertrand pricing game. Whiskers depict the 5<sup>th</sup> and 95<sup>th</sup> percentiles of a particular outcome, boxes depict the 25<sup>th</sup> and 75<sup>th</sup> percentiles, and the solid horizontal line depicts the median.

## The Distributions of Merger Outcomes as the Number of Integrated Firms Increases

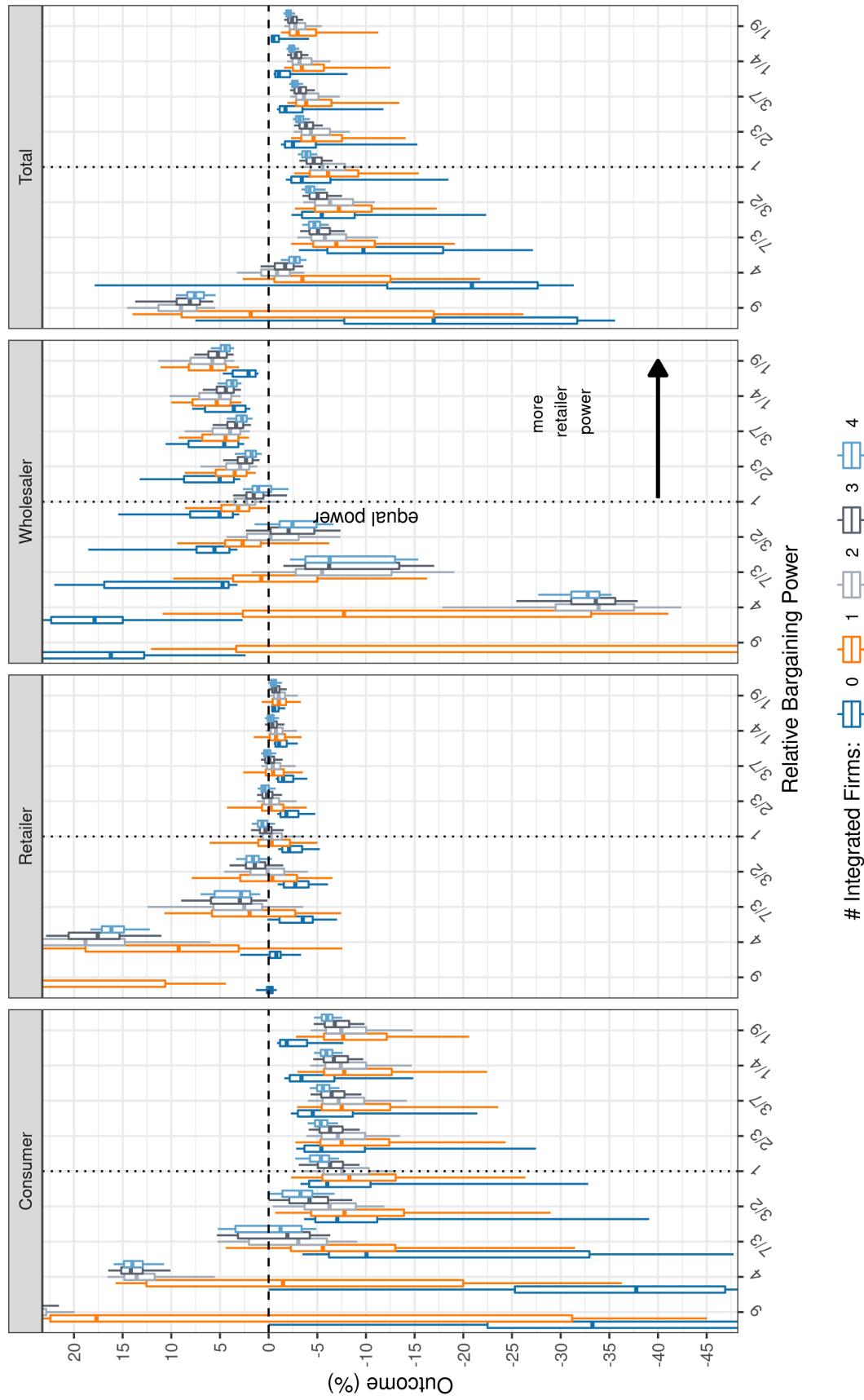
Outcomes are reported as a percentage of pre-merger total expenditures.  
Horizontal mergers occur between a vertically integrated and unintegrated firm.



**Figure 2** The figure displays box and whisker plots summarizing the extent to which mergers affect consumer, retailer, wholesaler, and total surplus as the number of vertically integrated firms present in a market change. Each blue box depicts the effects assuming that retailers are playing a Bertrand pricing game. Whiskers depict the 5<sup>th</sup> and 95<sup>th</sup> percentiles of a particular outcome, boxes depict the 25<sup>th</sup> and 75<sup>th</sup> percentiles, and the solid horizontal line depicts the median.

## How Changing Bargaining Strength Affects Surplus in a Merger Among Wholesalers

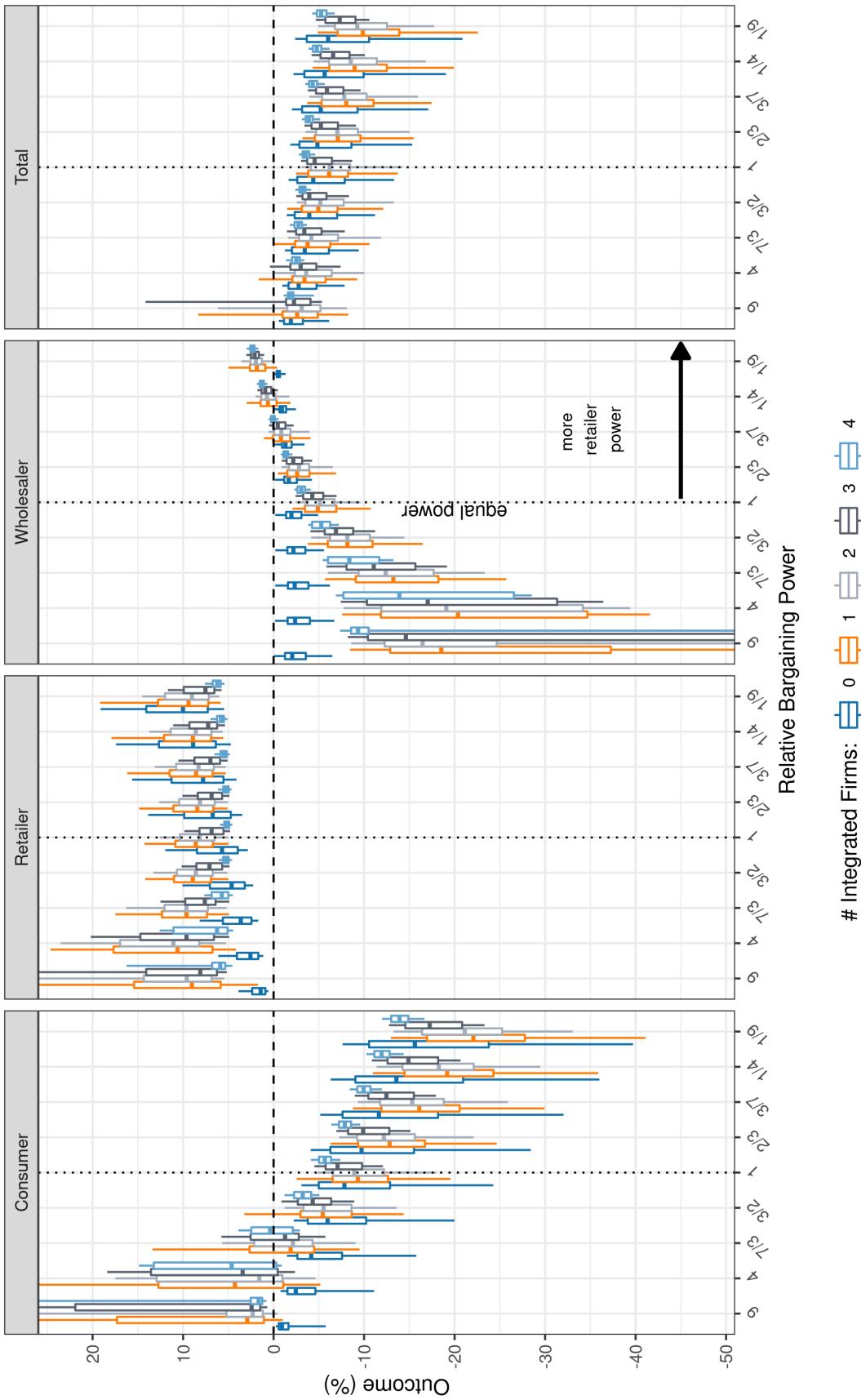
Outcomes are reported as a percentage of pre-merger total expenditures.



**Figure 3** The figure displays box and whisker plots summarizing the extent to which mergers among an integrated and un-integrated wholesaler affect consumer, retailer, wholesaler, and total surplus as the bargaining power of wholesalers relative to retailers changes. The different colored boxes display how outcomes change as the number of vertically integrated firms increases. Whiskers depict the 5<sup>th</sup> and 95<sup>th</sup> percentiles of a particular outcome, boxes depict the 25<sup>th</sup> and 75<sup>th</sup> percentiles, and the solid horizontal line depicts the median.

## How Changing Bargaining Strength Affects Outcomes in a Merger Among Retailers

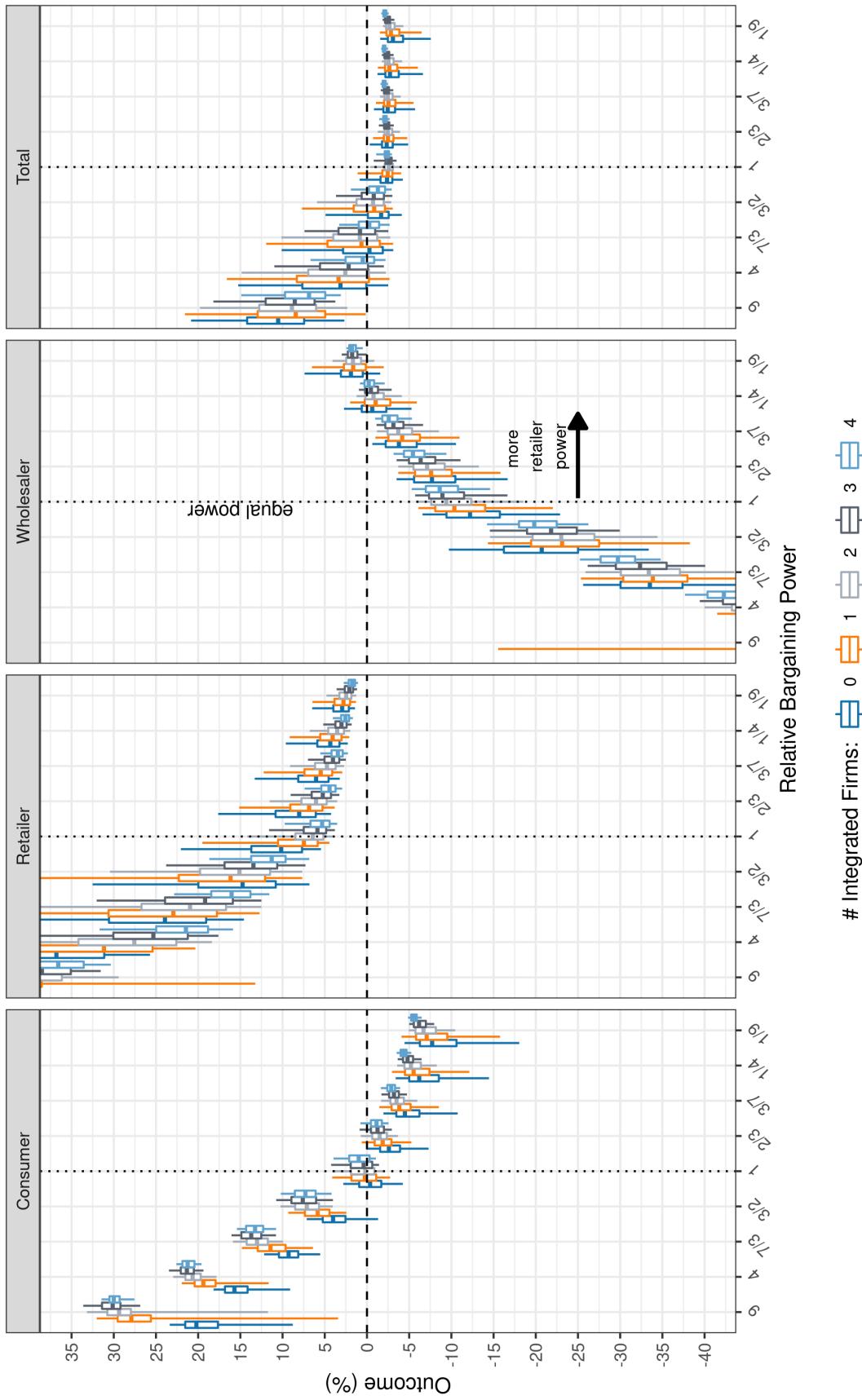
Outcomes are reported as a percentage of pre-merger total expenditures.



**Figure 4** The figure displays box and whisker plots summarizing the extent to which mergers among an integrated and un-integrated retailer affect consumer, retailer, wholesaler, and total surplus as the bargaining power of wholesalers relative to retailers changes. The different colored boxes display how outcomes change as the number of vertically integrated firms increases. Whiskers depict the 5<sup>th</sup> and 95<sup>th</sup> percentiles of a particular outcome, boxes depict the 25<sup>th</sup> and 75<sup>th</sup> percentiles, and the solid horizontal line depicts the median.

## How Changing Bargaining Strength Affects Surplus in a Vertical Merger

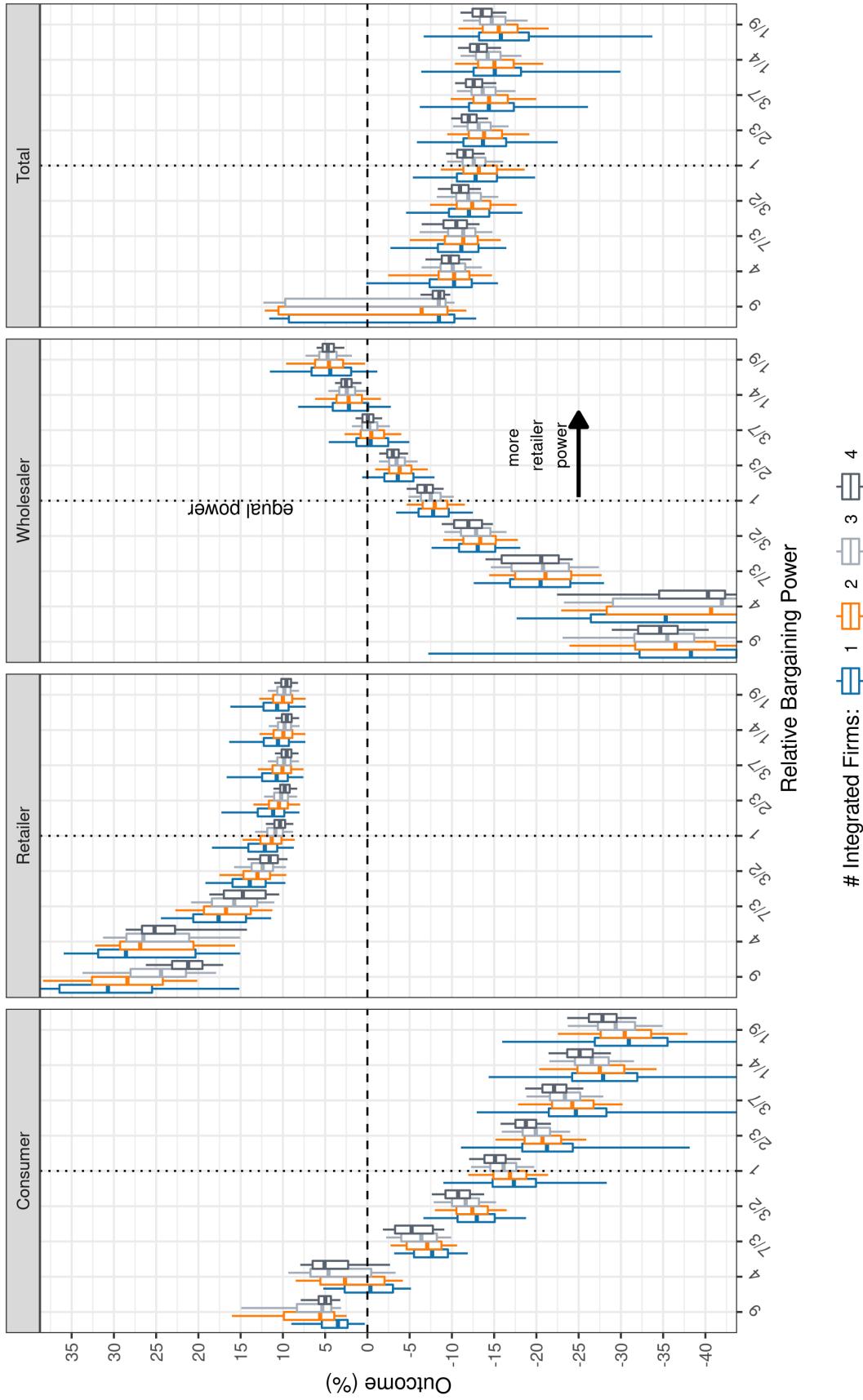
Outcomes are reported as a percentage of pre-merger total expenditures.



**Figure 5** The figure displays box and whisker plots summarizing the extent to which mergers among an unintegrated wholesaler and unintegrated retailer affect consumer, retailer, wholesaler, and total surplus as the bargaining power of wholesalers relative to retailers changes. The different colored boxes display how outcomes change as the number of vertically integrated firms increases. Whiskers depict the 5<sup>th</sup> and 95<sup>th</sup> percentiles of a particular outcome, boxes depict the 25<sup>th</sup> and 75<sup>th</sup> percentiles, and the solid horizontal line depicts the median.

## How Changing Bargaining Strength Affects Surplus in an Integrated Merger

Outcomes are reported as a percentage of pre-merger total expenditures.



**Figure 6** The figure displays box and whisker plots summarizing the extent to which mergers among two integrated wholesalers and retailers affect consumer, retailer, wholesaler, and total surplus as the bargaining power of wholesalers relative to retailers changes. The different colored boxes display how outcomes change as the number of vertically integrated firms increases. Whiskers depict the 5<sup>th</sup> and 95<sup>th</sup> percentiles of a particular outcome, boxes depict the 25<sup>th</sup> and 75<sup>th</sup> percentiles, and the solid horizontal line depicts the median.