# Pricing Competition Charts

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## Libraries

```
-- Attaching core tidyverse packages ------------------------ tidyverse 2.0.0 --
v dplyr     1.1.4     v readr     2.1.5
v forcats   1.0.0     v stringr   1.5.1
v lubridate 1.9.4     v tibble    3.3.0
v purrr     1.1.0     v tidyr     1.3.1
-- Conflicts ------------------------------------------ tidyverse_conflicts() --
x dplyr::filter() masks stats::filter()
x dplyr::lag()    masks stats::lag()
i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to becor
```

## DataFrame

| | Matchup | Shock | Model | Agent1_Avg_Prices | Theo_Prices | Agent2_Avg_Prices |
|---|---|---|---|---|---|---|
| 1 | PSO vs DQN | B | LINEAR | 0.44 | 0.43 | 0.47 |
| 2 | PSO vs PSO | C | HOTELLING | 1.06 | 1.00 | 1.06 |
| 3 | Q vs PSO | C | HOTELLING | 1.13 | 1.00 | 1.14 |
| 4 | DDPG vs DDPG | 0 | HOTELLING | 1.13 | 1.00 | 1.13 |
| 5 | PSO vs PSO | A | LOGIT | 1.57 | 1.80 | 1.57 |
| 6 | PSO vs DQN | A | HOTELLING | 1.14 | 1.00 | 1.14 |
| 7 | PSO vs DQN | 0 | HOTELLING | 1.14 | 1.00 | 1.10 |
| 8 | DQN vs DDPG | A | LINEAR | 0.47 | 0.43 | 0.49 |
| 9 | Q vs PSO | A | LINEAR | 0.47 | 0.43 | 0.44 |
| 10 | PSO vs PSO | A | LINEAR | 0.43 | 0.43 | 0.43 |

| | Theo_Prices_2 | Agent1_Delta | Agent2_Delta | Agent1_RPDI | Agent2_RPDI |
|---|---|---|---|---|---|
| 1 | 0.43 | 0.15 | 0.03 | 0.14 | 0.57 |
| 2 | 1.00 | 0.25 | 0.23 | 0.25 | 0.24 |
| 3 | 1.00 | 0.56 | 0.53 | 0.53 | 0.57 |
| 4 | 1.00 | 0.49 | 0.52 | 0.53 | 0.51 |

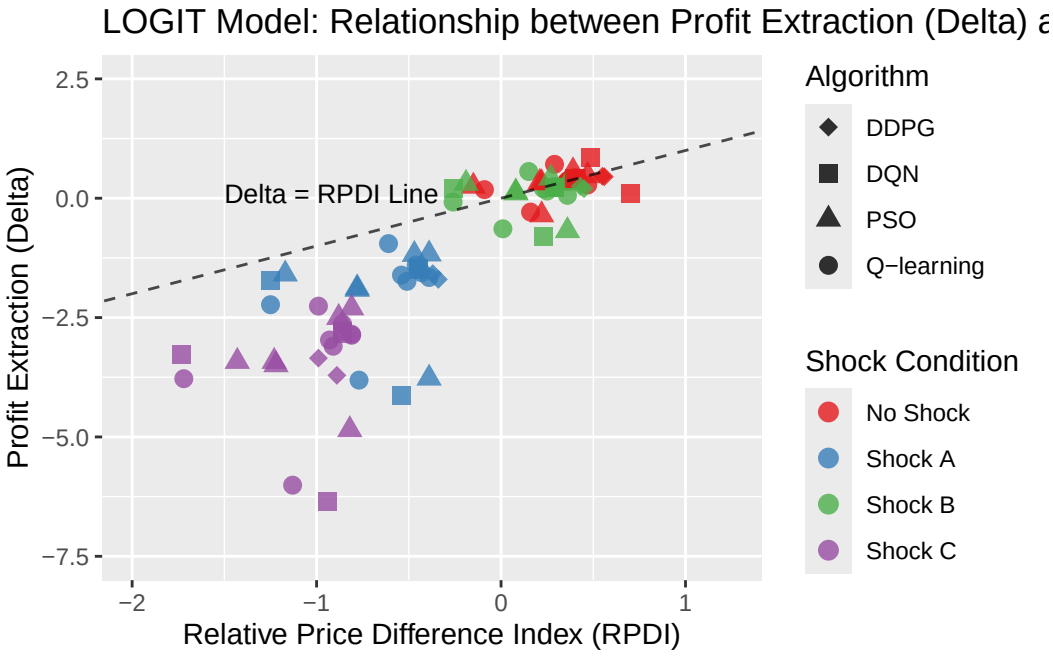
| | | | | | |
|---|---|---|---|---|---|
| 5 | 1.80 | -1.88 | -1.91 | -0.78 | -0.78 |
| 6 | 1.00 | 0.56 | 0.54 | 0.57 | 0.56 |
| 7 | 1.00 | 0.39 | 0.56 | 0.58 | 0.41 |
| 8 | 0.43 | 0.79 | 0.78 | 0.62 | 0.80 |
| 9 | 0.43 | 0.70 | 0.68 | 0.54 | 0.14 |
| 10 | 0.43 | 0.60 | 0.60 | 0.05 | 0.05 |

## Delta vs RPDI Scatter Plots

Visualize the relationship between profit extraction (Delta) and price elevation (RPDI).

### Logit

```
Warning: Using `size` aesthetic for lines was deprecated in ggplot2 3.4.0.
i Please use `linewidth` instead.
```



**Hotelling**

**Linear**

## Shock Impact Across Market Structures

## Price Stability vs Benchmark Shift (Logit)