COMPASS LEXECON

Warsaw Conference 2017

Games Economists Play when Assessing Damages

Lessons from cases around the world

25 April 2017

Dr Jorge Padilla

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The basic model

THE BASIC "BEFORE AND AFTER" MODEL

$$Price = \alpha + \beta \cdot supply + \gamma \cdot demand + \boldsymbol{\lambda} \cdot cartel + \varepsilon$$

Coefficient of interest: captures overcharge level *specifically* due to anticompetitive practices

THE BASIC "BEFORE AND AFTER" MODEL

$$Price = \alpha + \beta \cdot supply + \gamma \cdot demand + \boldsymbol{\lambda} \cdot cartel + \varepsilon$$

$$\lambda > 0$$

$$cartel = \begin{cases} 1 & cartel\ period \\ 0 & outside\ the\ cartel\ period \end{cases}$$

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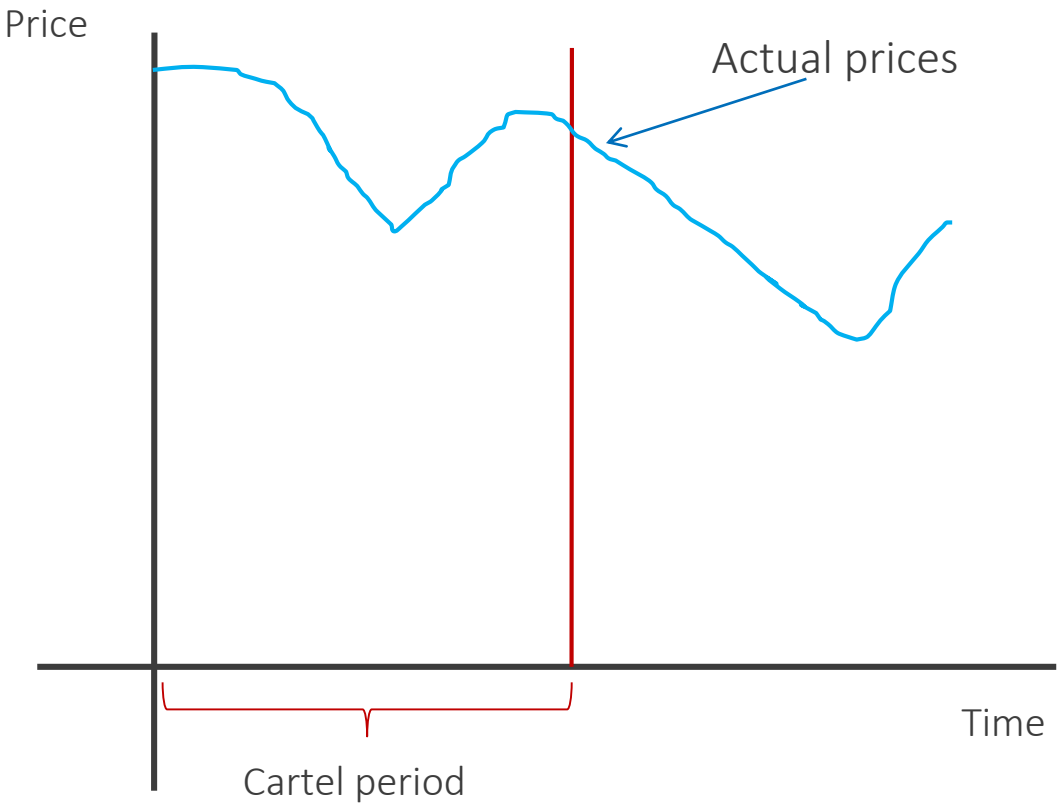
$$\lambda > 0$$



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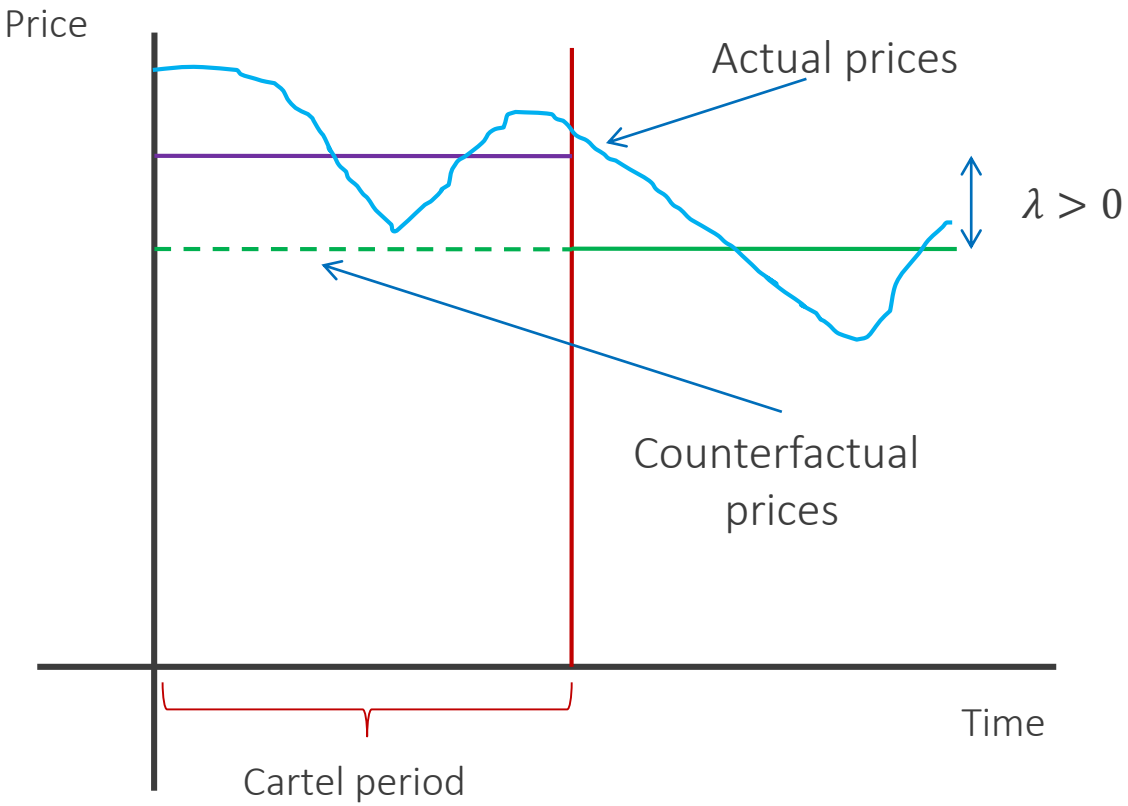

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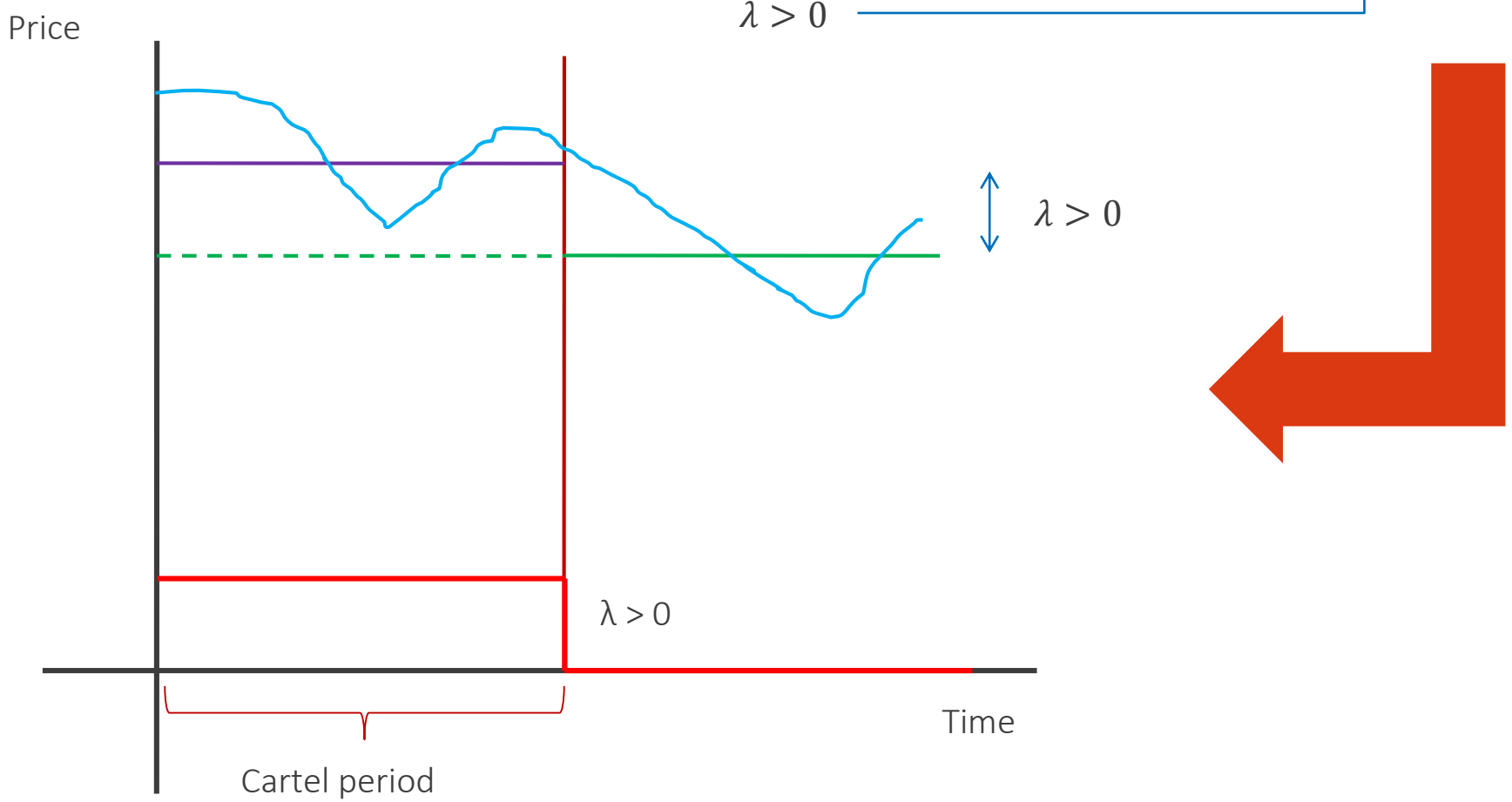

Statistical significance

THE BASIC "BEFORE AND AFTER" MODEL

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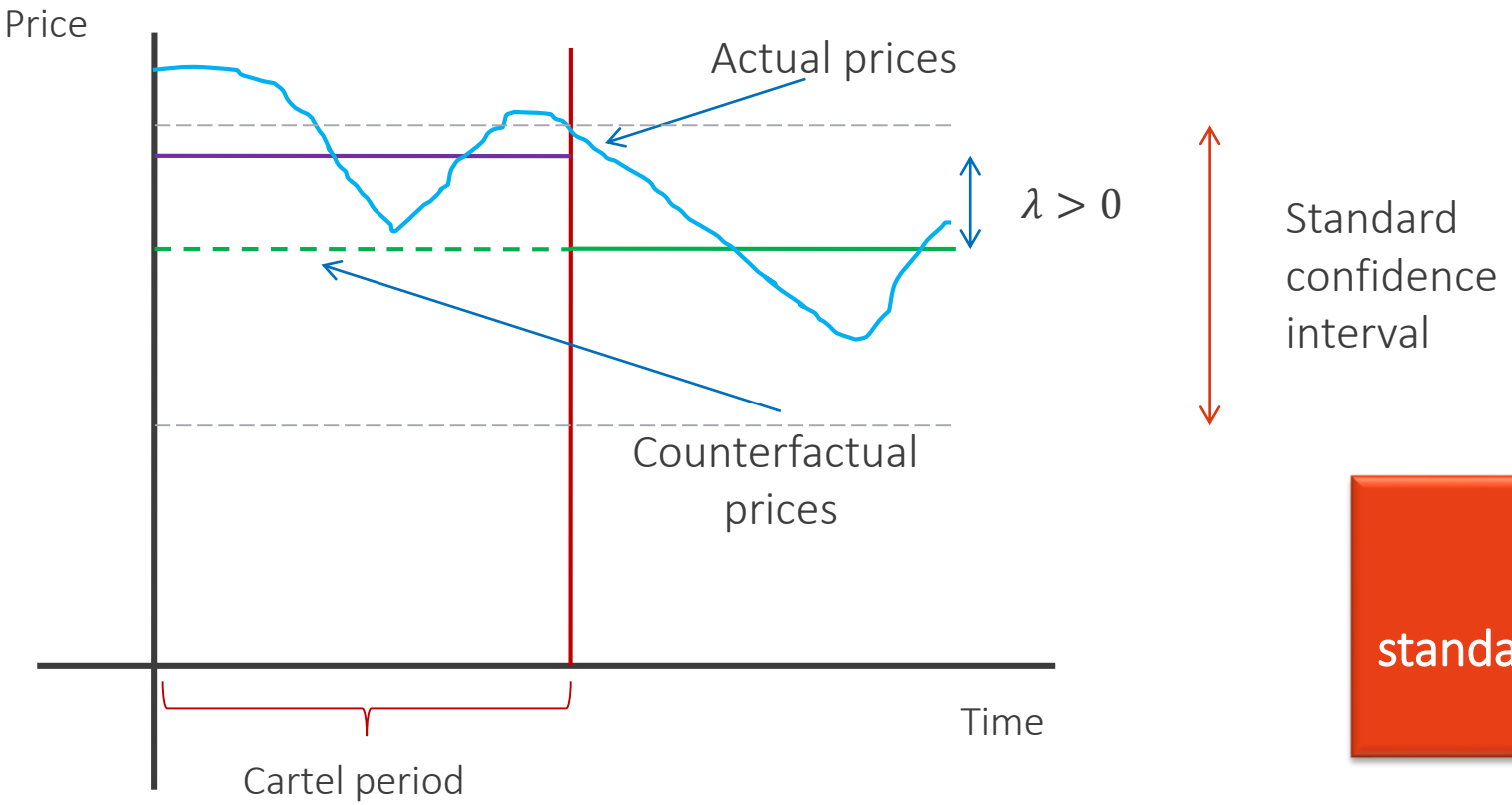


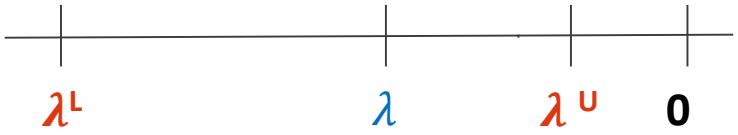
No overcharge under standard statistical confidence criteria

STATISTICAL SIGNIFICANCE

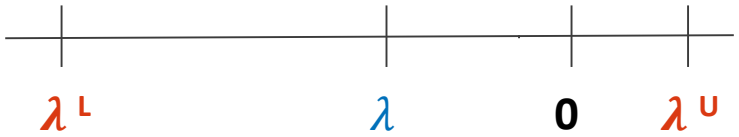
- The regression model provides estimates of the effect of the Infringement on prices (i.e. point estimates) and the statistical significance of these point estimates.

λ	Point estimate It is the best estimate of the impact of the Infringement on prices

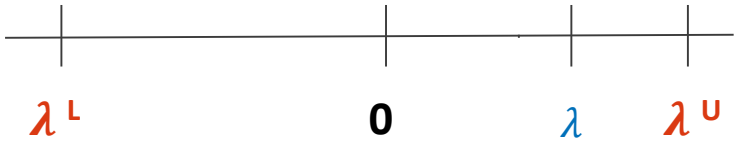
*	Weakly statistically significant
**	Statistically significant
***	Highly statistically significant



Negative, statistically significant



Negative, not statistically significant



Positive, not statistically significant

STATISTICAL SIGNIFICANCE

$$Price = \alpha + \beta \cdot supply + \gamma \cdot demand + \boldsymbol{\lambda} \cdot cartel + \varepsilon$$

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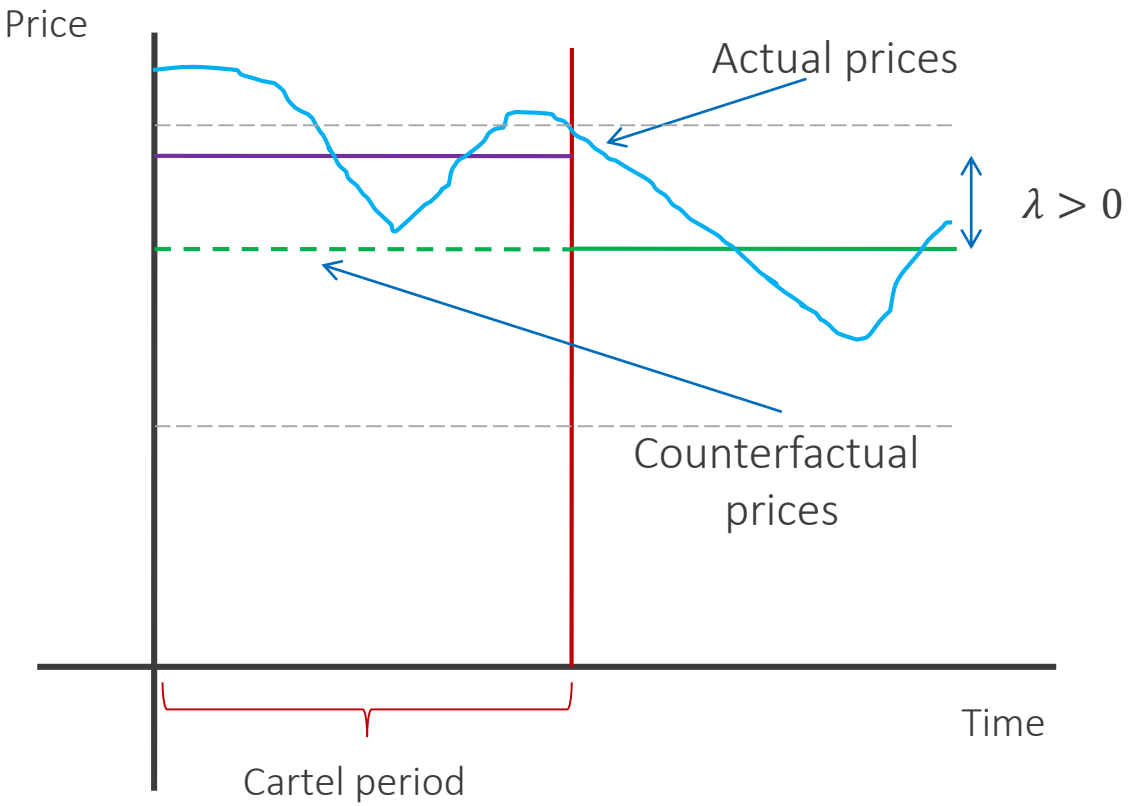
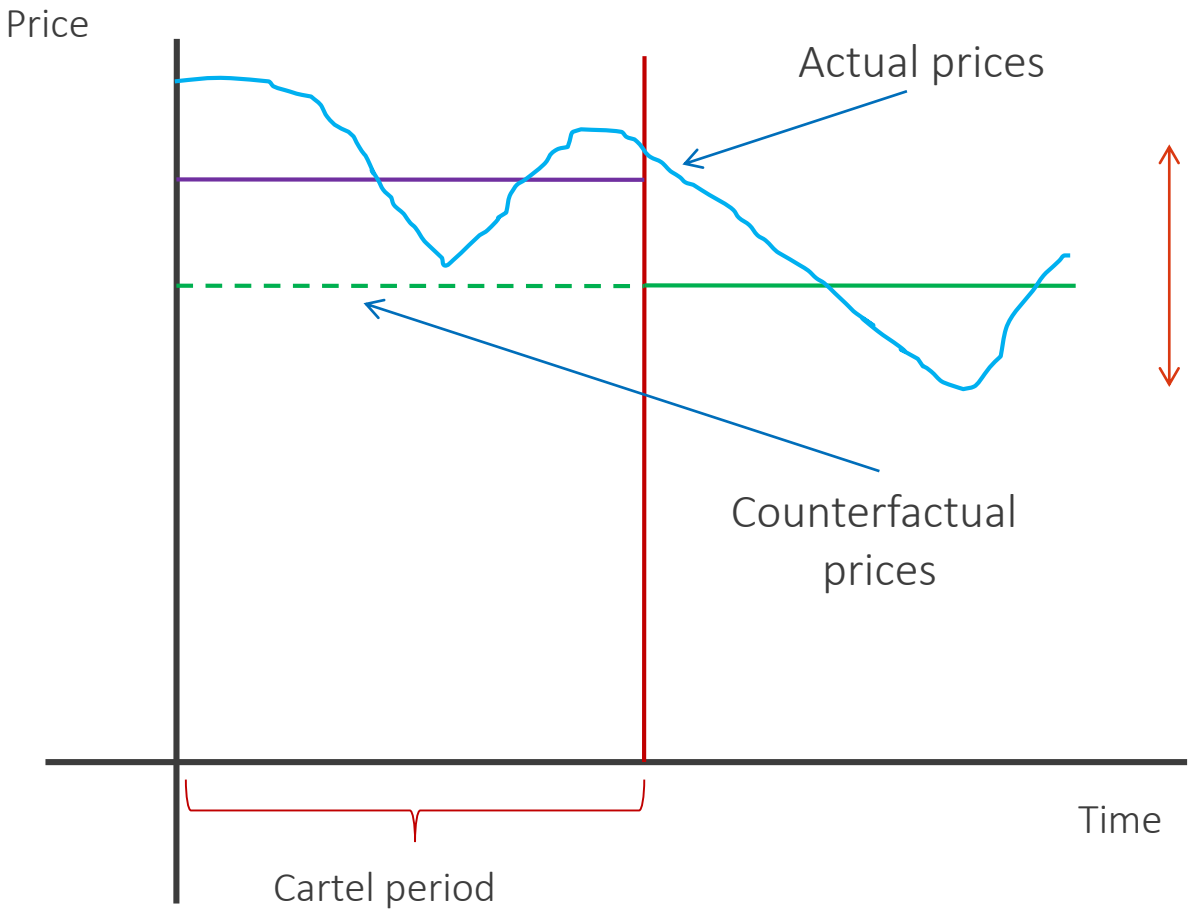


Standard confidence interval

No overcharge under standard statistical confidence criteria

STATISTICAL SIGNIFICANCE GAMES



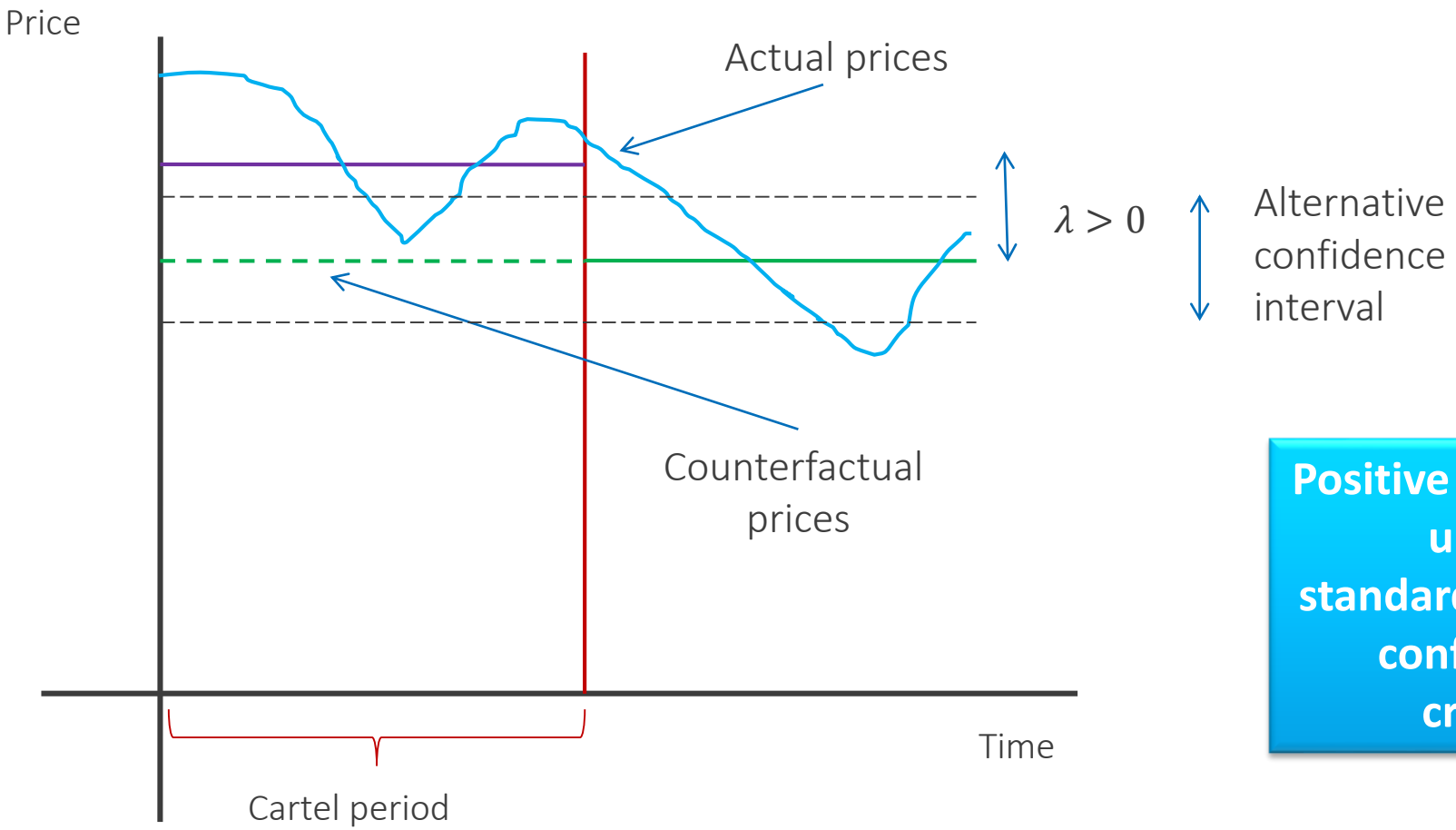
Standard confidence interval

Alternative confidence interval

What is the right confidence interval?

- **Data considerations**
- **Appropriate presumpions**

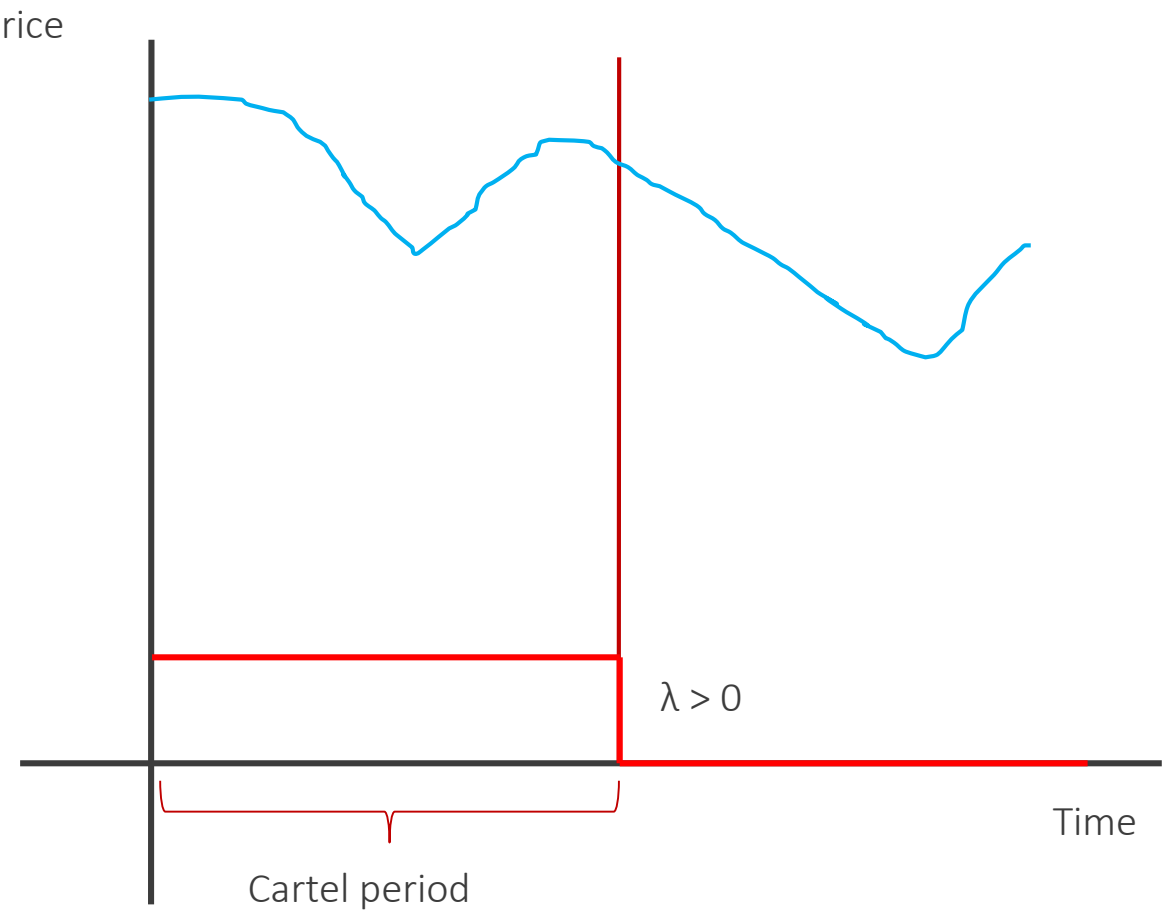
STATISTICAL SIGNIFICANCE GAMES



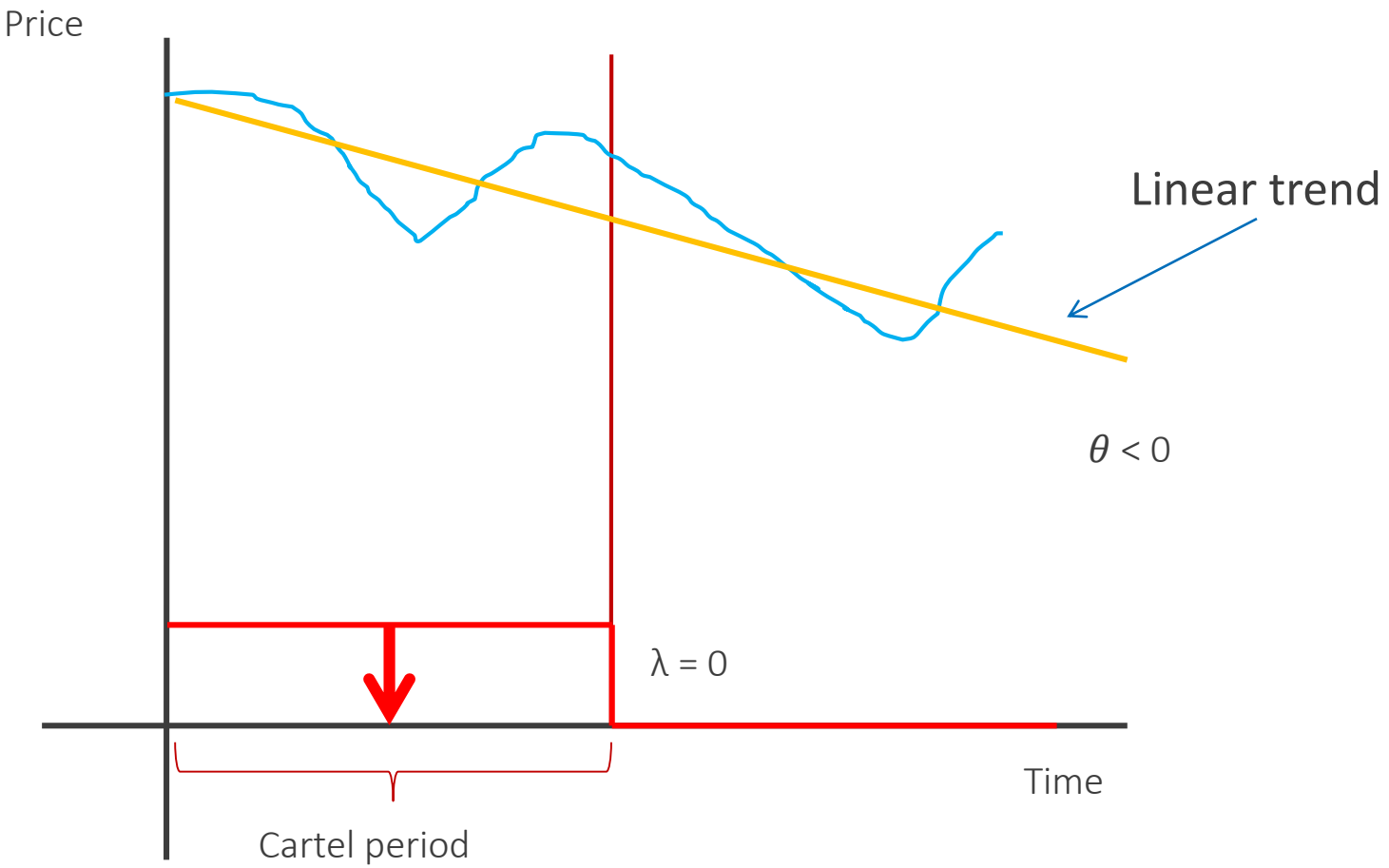
Positive overcharge under standard statistical confidence criteria

Trend manipulations

PLAYING WITH TRENDS

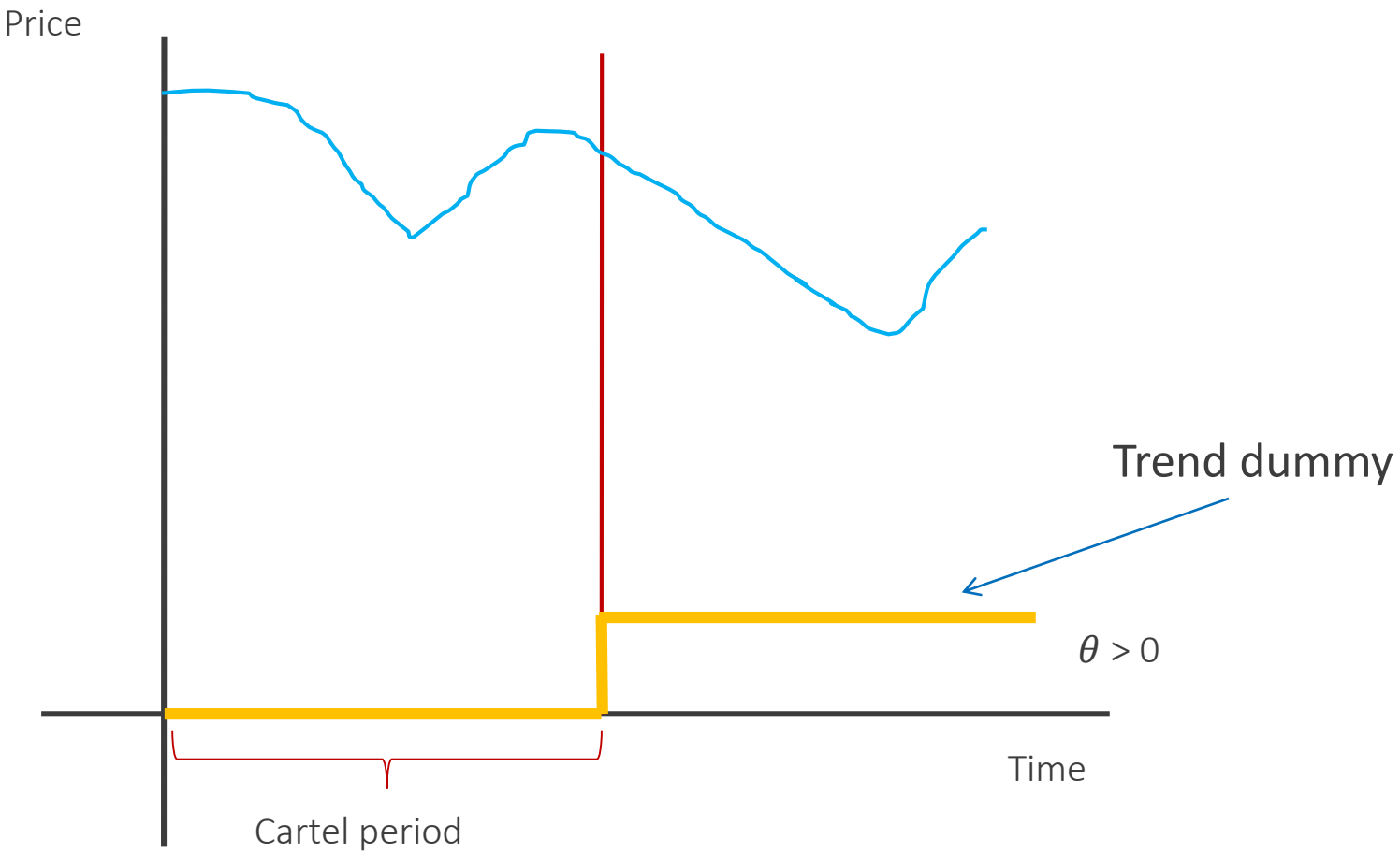


PLAYING WITH TRENDS TO REDUCE THE OVERCHARGE



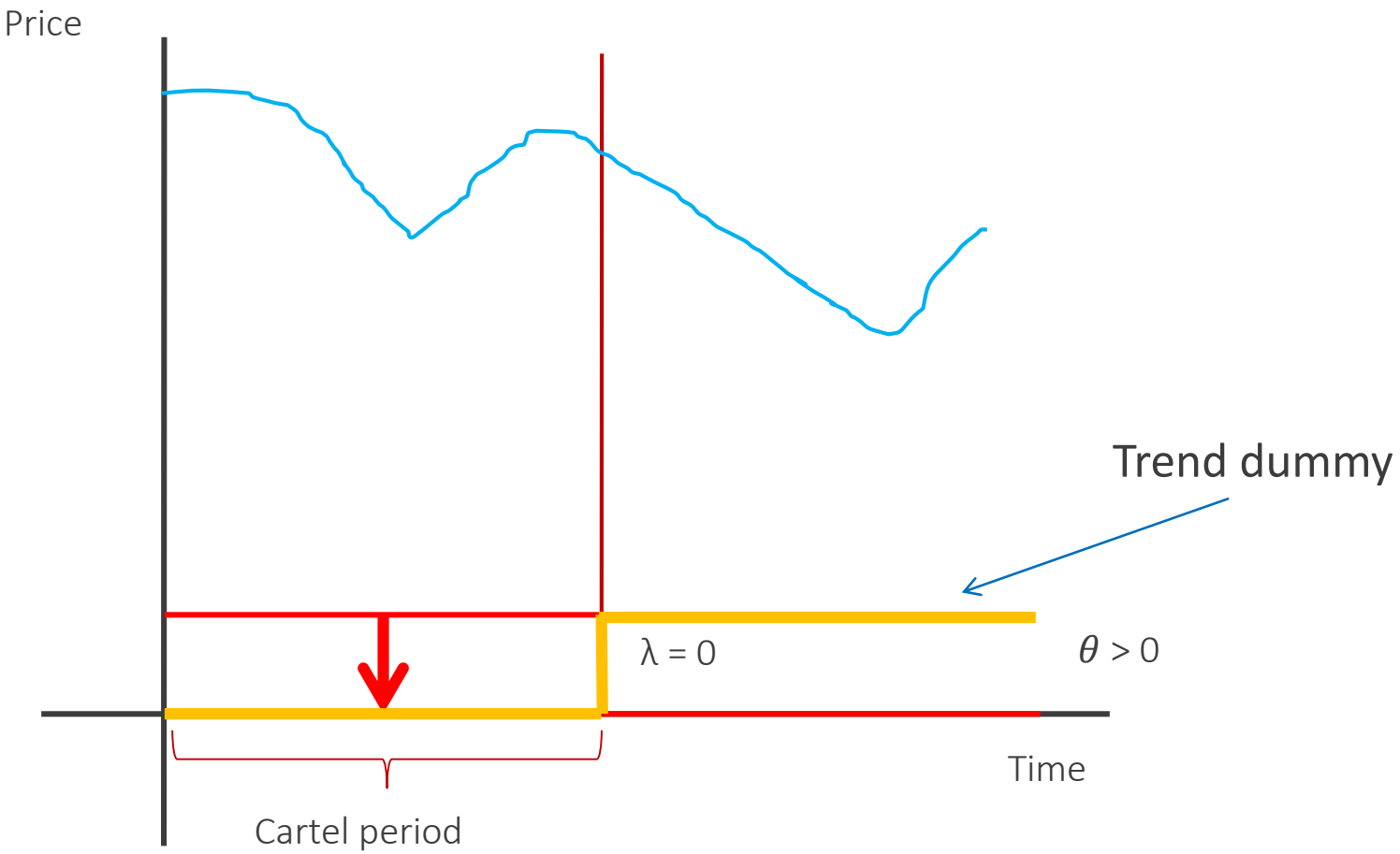
$$Price = \alpha + \beta \cdot supply + \gamma \cdot demand + \boldsymbol{\lambda} \cdot cartel + \theta \cdot linear\ trend + \varepsilon$$

PLAYING WITH TRENDS TO REDUCE THE OVERCHARGE



$$Price = \alpha + \beta \cdot supply + \gamma \cdot demand + \boldsymbol{\lambda} \cdot cartel + \theta \cdot trend\ dummy + \varepsilon$$

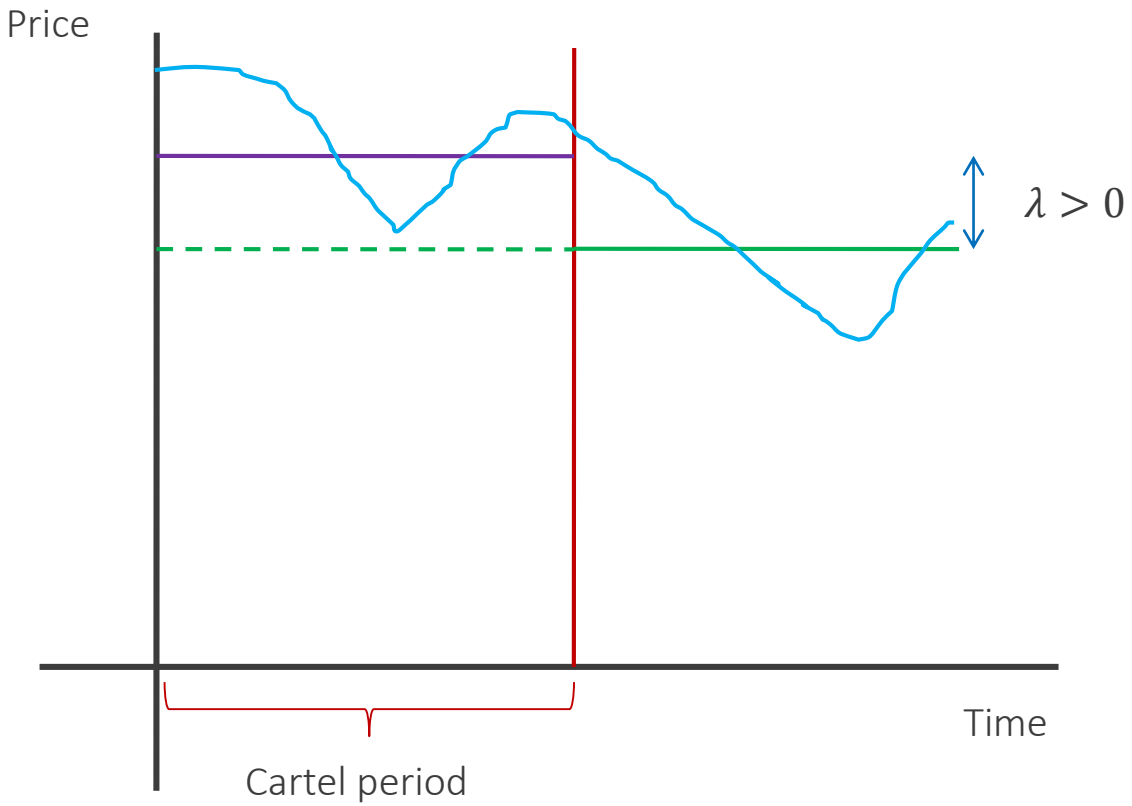
PLAYING WITH TRENDS TO REDUCE THE OVERCHARGE



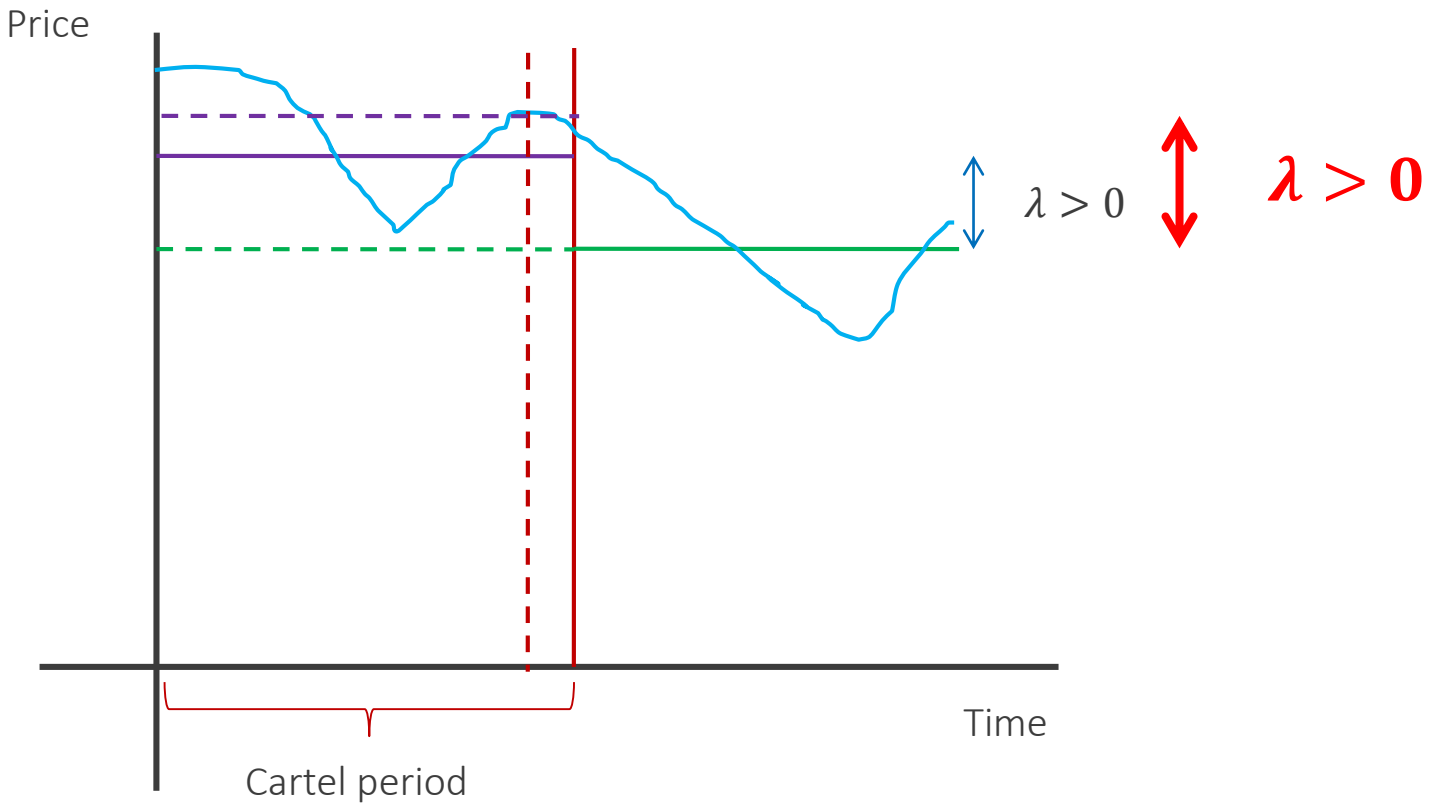
$$Price = \alpha + \beta \cdot supply + \gamma \cdot demand + \boldsymbol{\lambda} \cdot cartel + \theta \cdot trend\ dummy + \varepsilon$$

Playing with the cartel period

PLAYING WITH THE CARTEL PERIOD



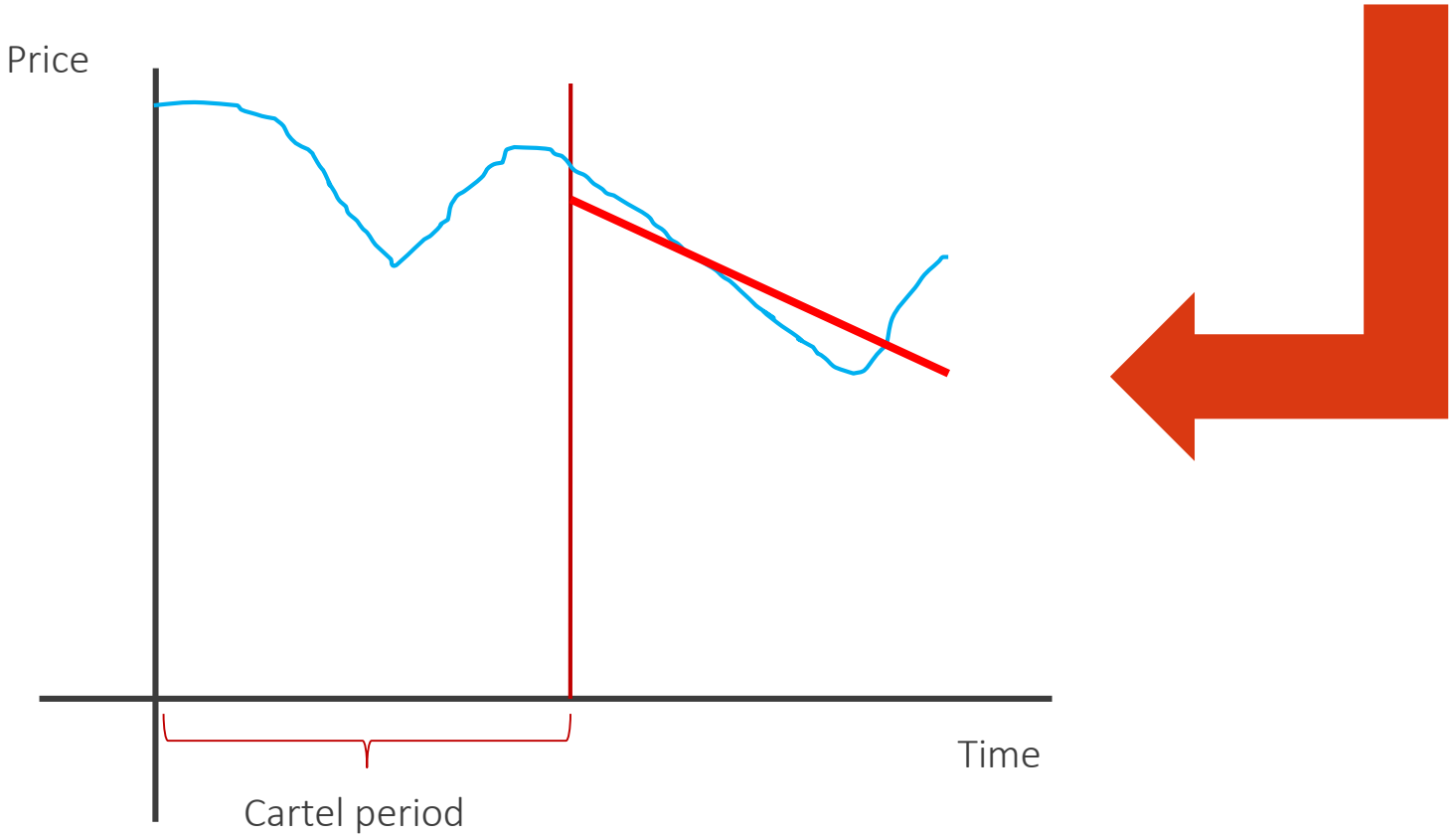
PLAYING WITH THE CARTEL PERIOD



Back-casting tricks

BACK-CASTING MODEL

$$Price = \alpha + \beta \cdot supply + \gamma \cdot demand + \varepsilon$$



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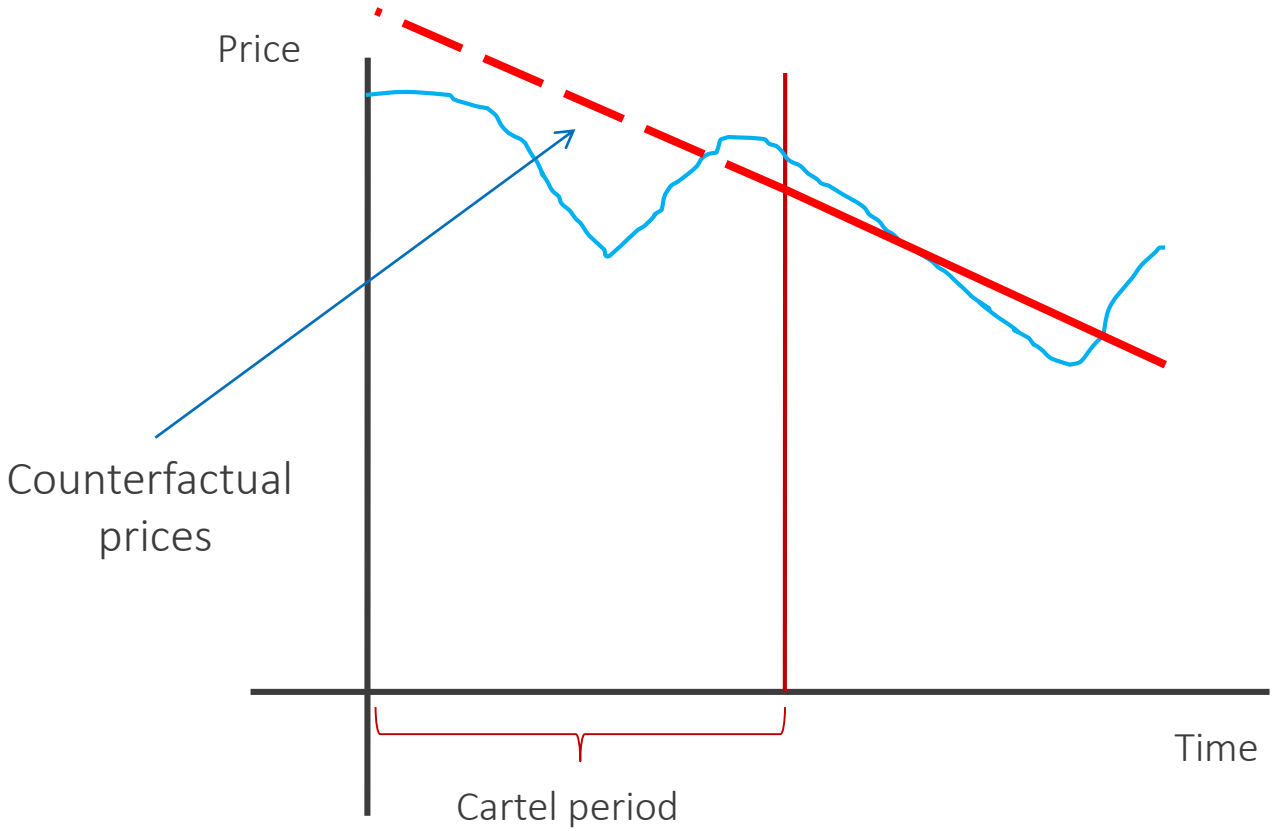
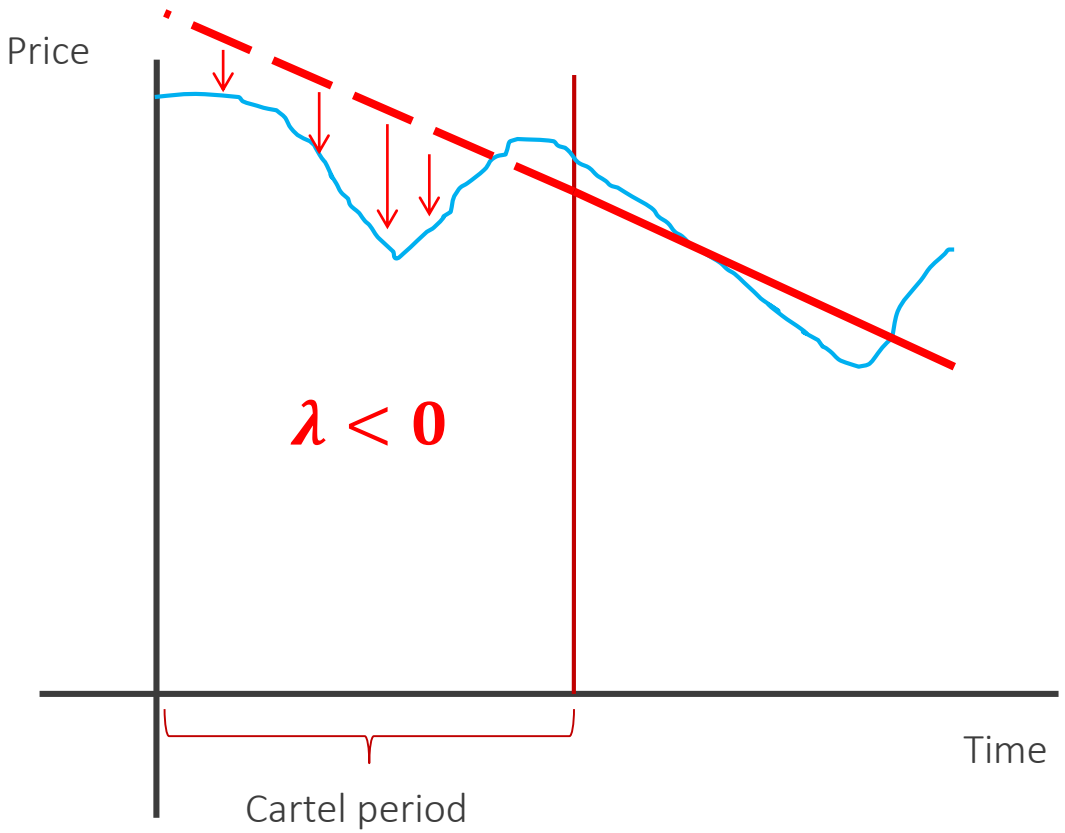


BACK-CASTING MODEL PRODUCES ABSURD RESULTS

$$Price = \alpha + \beta \cdot supply + \gamma \cdot demand + \varepsilon$$



Conclusions

CONCLUSIONS

- Economists play games to increase or decrease the overcharge
- Same occurs with the pass-trough rate
- These tricks can be spotted
- … in cross examination
- … and during a hot tub session
- Judges should reward honest experts and punish those that play tricks

CONCLUSIONS

Concurrences

Antitrust Publications & Events

Assessing Damages in (Input) Price Fixing Cases

Enrique Andreu, Jorge Padilla and Nadine Watson[1]

According to the law of nature it is only fair that no one should become richer through damages and injuries suffered by another - Marcus Tullius Cicero

Cartel damages in price fixing cases are typically calculated by estimating the difference between the cartel's price and the price that would have existed absent the cartel (i.e., in a counterfactual or *but for* world without price fixing) and multiplying that difference, or per-unit price overcharge, by the number of units purchased by direct purchasers. In some jurisdictions, when the cartel affects the price of an input which is used to manufacture products sold to final consumers, this measure of overcharge is adjusted downwards to reflect the fact that part of the price overcharge is passed through to final consumers (who are indirect purchasers of the cartelised product).

This approach is likely to underestimate the true harm caused by price fixing, especially when the cartel affects an intermediate goods industry. This is for two reasons.

- *First*, as shown by Basso and Ross (2010),[2] the overcharge measure is likely to underestimate the harm caused by a cartel on direct and indirect purchasers as it omits potentially significant volume effects.

- *Second*, the standard approach to estimating the magnitude of the price impact of a cartel is also likely to lead to too low estimates of the cartel overcharge. Economists typically compare observed prices "during" the cartel period with the prices observed in periods "before" and "after" the cartel. They measure the price overcharge as the difference between the average price observed in the cartel period and the average price observed before and after the cartel period, provided that such a difference is (a) *statistically significant* and (b) is not caused by factors other than the cartel (so-called *confounding factors*). However, the use of standard statistical significance criteria may lead economists to conclude that the cartel may not have had a material effect on prices, when in fact the opposite is true. Furthermore, the use of multiple regression analysis to control for confounding factors may be misused to produce economically and statistically insignificant estimates of the price overcharge.

[1] The authors are economist at CompassLexecon. This essay was prepared for presentation at the Concurrences' conference "New Frontiers of Antitrust" held in Paris on 11th February 2011. The usual caveats apply.

[2] L. Basso, and T.W. Ross, "Measuring the true harm from price-fixing to both direct and indirect purchasers", *Journal of Industrial Economics*, 2010.

1

THANK YOU!

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