

# Learning to Coordinate: A Study in Retail Gasoline

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**Question:** What is the equilibrium selection in the retail gasoline industry?

**What this paper does:**

- ① Study how is collusion initiated and maintained in Perth, Australia.
- ② How? By identifying non-explicit communication through price signals.

**Why is this important:** Sustained (high) price collusions on gasoline industry damage consumers.

**Key take away:** Non-explicit communication by a strong leader in a market can lead to firm price coordination collective learning.

# The market: Perth, Australia

- 1.7M people city
- 4 major firms refine, import and distributed fuel. 2 other national supermarkets participate as retailers.
- Fuelwatch: Gasoline retailers provide their daily prices by law.
- $\implies$  Price competition on daily basis, price is set simultaneously, common knowledge of prices.
- $\implies$  Repeated game of collusion in a homogenous good price with simultaneous competition and perfect monitoring.

Universe of station-brand level prices from 2001 to 2015. Merged with spot prices for wholesale upstream suppliers.

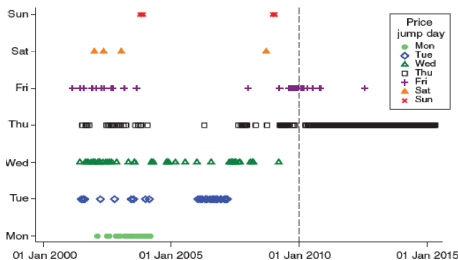
## Retail price cycles



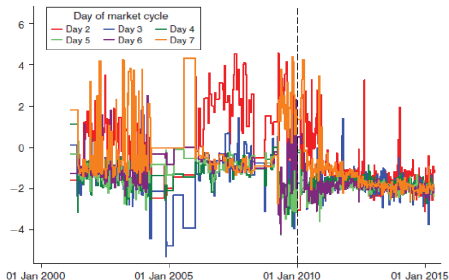
A market cycle commences on date  $t$  if  $\text{nedian}_t(\Delta p_{it}) \geq 6\text{cpl}$

# Two focal points

Week day price jumps:  $\Delta(p_{it}) > 6$  cpl



Average daily price cuts

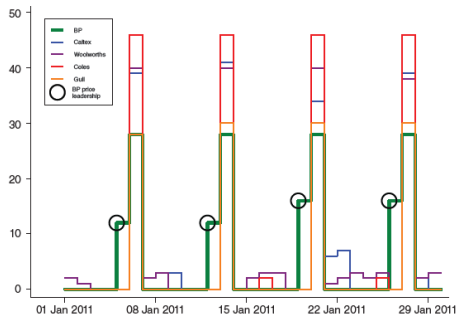


- Before March 2010, average margin was 4.85 cpl, after, 10.01 cpl.
- Perth's margin after March 2010 relative to other Australian cities is 3.49 cpl higher.

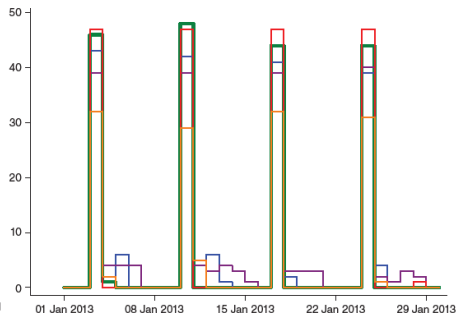
# Coordinating an Equilibrium Transition

Price leader: Price jump at  $t$  plus market cycle begins at  $t$  or  $t + 1$  plus  $< 2.5\%$  stations increase prices at  $t - 1$ .

BP leader (Wed play)



Simultaneous coordination (Thu)

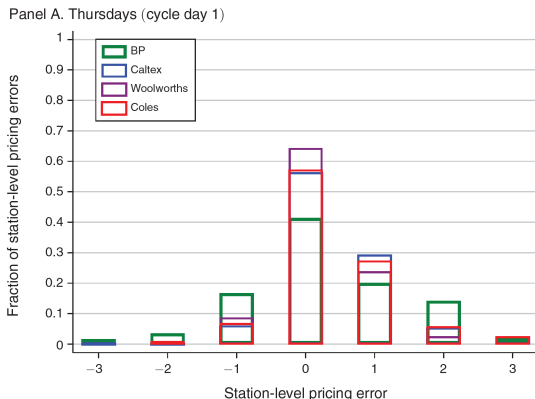


BP performed some experimentation by changing the day of price increases, realizing the huge power they had as followers firms reacted when they observed and not observed the BP signal.

# Price coordination sophisticates

Price error: Station  $i$  retail price - market median price

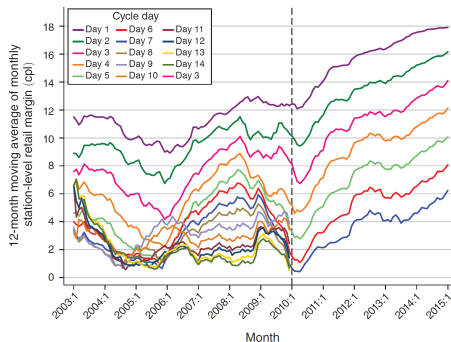
Same day (Thu) price coordination at the bottom of the cycle



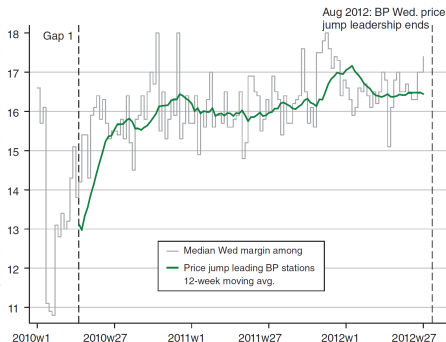
⇒ Firms effectively coordinated on Thu without the Wed signal.

# Focal points $\implies$ higher profit margins

## Day smooth margins after coordination



## BP Wed price margin rise





# Wrap up

- ① Firms communicated through prices (rather than other explicit methods) to collude in prices.
- ② A powerful firm uses price leadership to facilitate collusion and raises oligopoly margins.
- ③ By setting regular behaviors (focal points) the leader is able to communicate the market strategy and the timing.

⇒ Inform the discussion on communication definition in collusion environments.

⇒ Demonstrates the communicative power of prices.

⇒ Highlights the value of detailed data for informing antitrust investigations.

## Amazing simple description of a cartel behavior

- Very, but very smart description of the data to convince readers that firms were colluded. The focal points' argument is brilliant.
- Highlights the value of “simple” analysis de demonstrate a difficult to catch phenomenon.

## Just Three points

- I am not sure how this papers actually demonstrate how the Cartel begins.
- Difficult to swallow that there is no explicit tools of communication used.
- Are they the first to demonstrate the communicative power of prices?  
It is actually demonstrated?

⇒ **I missed an explicit causality argument.**