

Learning to Coordinate: A Study in Retail Gasoline

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(AER, 2019)

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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.

Data (1): Fuelwatch

At 2:30 pm each day, tomorrow's prices were online for all stations.



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FuelWatch Quick Search - Results

Product: ULP
Metro Region: Any Metro
Suburbs: PERTH (including surrounding suburbs)

Brands: Any Brand
Country Region: None
Date: Today and tomorrow

[Refine Search](#) [New Search](#)

Best prices available from 6:00am for today and tomorrow

Today	Tomorrow	Product	Brand	Name	Address	Suburb/Town	Map
92.1	92.1	ULP	Coles	Coles Express Mount Lawley	Cnr Walcott St & Fitzgerald St	NORTH PERTH	
93.1	93.1	ULP	Caltex	Caltex StarMart Highgate	Cnr Beaufort St & Bulwer St	HIGHGATE	
93.1	93.1	ULP	Caltex	Caltex StarMart East Perth	157 Lord St	PERTH	
93.1	93.1	ULP	Caltex	Caltex Wellington Street	141 Wellington St	PERTH	
99.9	99.9	ULP	United	United Mt Lawley	791 Beaufort St	MT LAWLEY	
99.9	99.9	ULP	Caltex	Caltex StarShop Mt Lawley	810 Beaufort St	MT LAWLEY	
104.9	92.1	ULP	Puma	Puma First Avenue Mt Lawley	81 Guildford Rd	MT LAWLEY	
106.7	103.7	ULP	United	United Northbridge	31 Fitzgerald St	NORTHBRIDGE	
107.5	107.5	ULP	Vibe	Vibe Charles St	427 Charles St	NORTH PERTH	
107.9	107.9	ULP	BP	BP Connect East Perth	Cnr East Pde & Brown St	EAST PERTH	
107.9	107.9	ULP	BP	BP Connect North Perth	Cnr Scarborough Beach Rd & Charles St	NORTH PERTH	
109.4	109.4	ULP	Gull	Gull East Perth	Cnr Pier St & Brisbane St	PERTH	
109.9	99.9	ULP	Coles Express	Coles Express Highgate	1-5 Guildford Rd	MT LAWLEY	
109.9	99.9	ULP	Coles Express	Coles Express Perth	480 William St	PERTH	
109.9	99.9	ULP	Coles Express	Coles Express West Perth	Cnr Wellington St & Thomas St	WEST PERTH	
125.9	125.9	ULP	Wesco	Wesco North Perth	41 Angove St	NORTH PERTH	

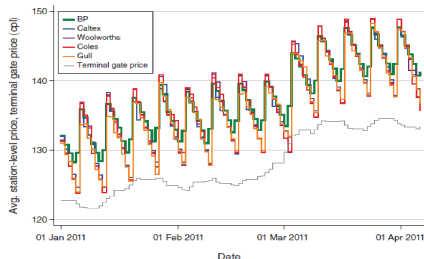
16 Prices found

Items per page 20

Data (2)

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

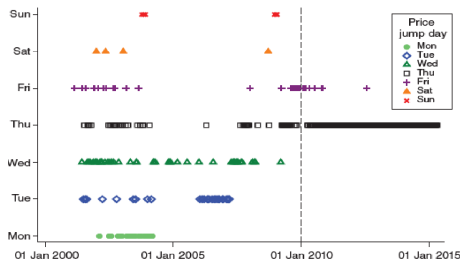
Retail price cycles



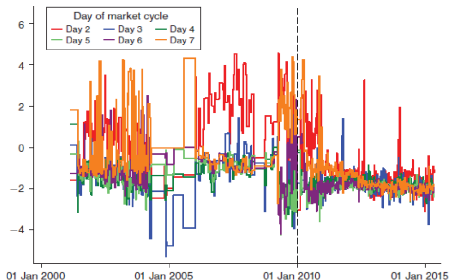
A market cycle commences on date t if $\text{nedian}_t(\Delta p_{it}) \geq 6\text{cpl}$

Two focal points

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

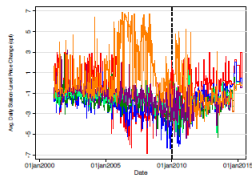
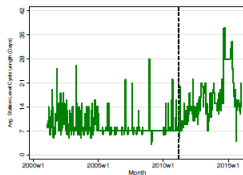
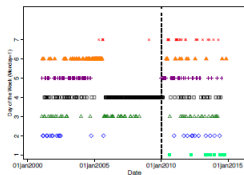
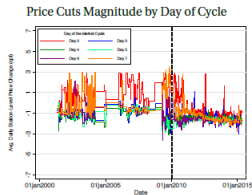
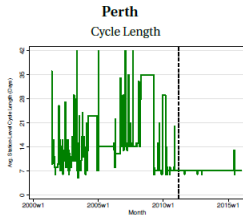
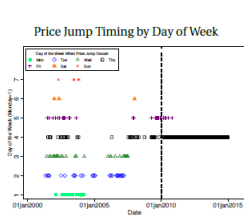


Average daily price cuts



- 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.

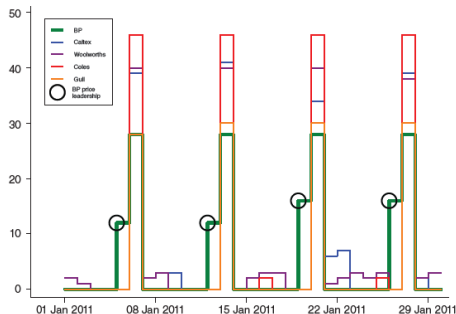
No focal points elsewhere



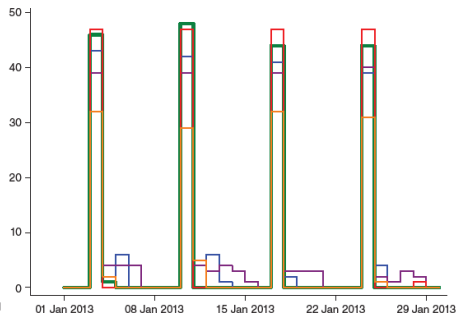
Coordinating an Equilibrium Transition

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)

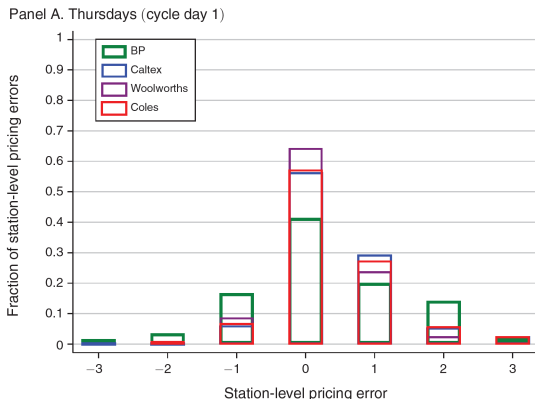


BP performed some experimentation by changing the day of price increases, realizing the huge power they had as followers firms reacted when they observed and not observed the BP signal.

Price coordination sophisticates

Price error: Station i retail price - market median price

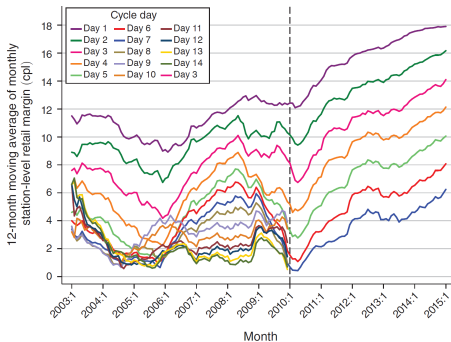
Same day (Thu) price coordination at the bottom of the cycle



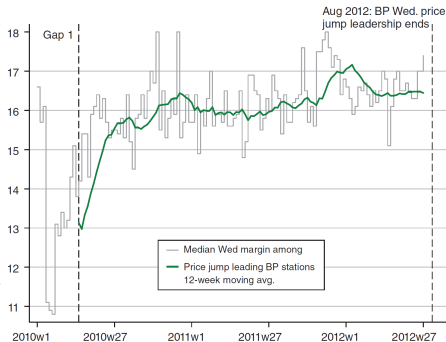
⇒ Firms effectively coordinated on Thu without the Wed signal.

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.**