

If you wish to discuss the tutorial questions please come to my [office hours](#).

1. The Bertrand model of price competition suggests that, under a given set of conditions, firms make zero economic profits even if there are only two firms. However, there are many instances of industries with a small number of competitors where firms appear to earn more than zero economic profits. Give an example of an industry dominated by a couple of firms where profits are significant. Explain why the predictions of the Bertrand model are not borne out.
2. A number of firms advertise their commitment to match their rival's prices:
  - Many of the major supermarkets in the UK (and elsewhere) have promised to match or better their rivals' prices. For example *Tesco* had the following 'Brand Guarantee':



**TESCO**  
Brand Guarantee

## Never pay more for your branded shop

Buy 10 or more different products and we'll price match your branded shop if it's cheaper at Asda, Morrisons or Sainsbury's.

How does it work?      Get my results      FAQs

### How does it work?



- 1. You shop**  
Buy 10 or more different products in-store or online. This can be a mix of branded and own label products.
- 2. We compare**  
We'll compare the total price of branded products in your basket with the same at Asda, Sainsbury's and Morrisons\*.
- 3. We match**  
If your branded shop is cheaper elsewhere, we'll refund the difference instantly in-store or on delivery day online.  
We refunded you £1.58
- 4. And... relax**  
You get peace of mind knowing that you'll never pay more for your branded shop at Tesco.

- *John Lewis* has used the slogan 'Never Knowingly Undersold' since 1925, and offers to match the price of rival high-street retailers.



NEVER KNOWINGLY  
UNDERSOLD  
SINCE 1925

Find out more about our  
price promise to you

- (a) Find two more online advertisements of price matching.

One explanation for price-matching can be illustrated using a small modification of the standard Bertrand model of price competition. Suppose that

- there are 1 million consumers each willing to pay at most £100 for the good (and nothing for additional units)
- the per-unit cost of production is zero.

There are two firms, A and B. Their *posted* prices (which may differ from the prices consumers actually pay) are  $p_A$  and  $p_B$ . As is usual, if the prices consumers have to pay to each firm are the same, then each firm gets half the consumers.

Suppose that both firms price match. That is, if a firm's posted price is higher than its rival's, then consumers can purchase from that firm at the rival's posted price. For example, if  $p_A > p_B$  then any shopper purchasing from firm A would pay  $p_B$ .

- (b) Draw A's demand curve when  $p_B = 0$  and when  $p_B = 100$ . How is it different to that in the standard Bertrand model? What does this imply about the incentive to undercut?
- (c) Is it a Nash equilibrium for both firms to post prices equal to the per-unit cost (i.e.  $p_A = p_B = 0$ )? Explain why or why not.  
[Hint: In this and the next two parts of this problem, the idea is to check whether there is an incentive for either firm to unilaterally deviate, i.e. whether either firm can strictly increase their profit by charging a different price, *given* the other firm's price remains unchanged. For a guide, look at the relevant slides in the lecture notes on the Bertrand model.]
- (d) Is it a Nash equilibrium for both firms to post prices equal to the monopoly price (i.e.  $p_A = p_B = 100$ )? Explain why or why not.
- (e) Are there any other Nash equilibria where both firms post the same prices? If so, what are they, and why are they Nash equilibria? If not, why not?
- (f) Based on your previous answers, explain intuitively why firms might offer a price-matching promise.