Introduction to Business Strategy
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How Competition Shapes the Creation and Distribution of Economic Value

Lecture 2: Porter's Five Forces

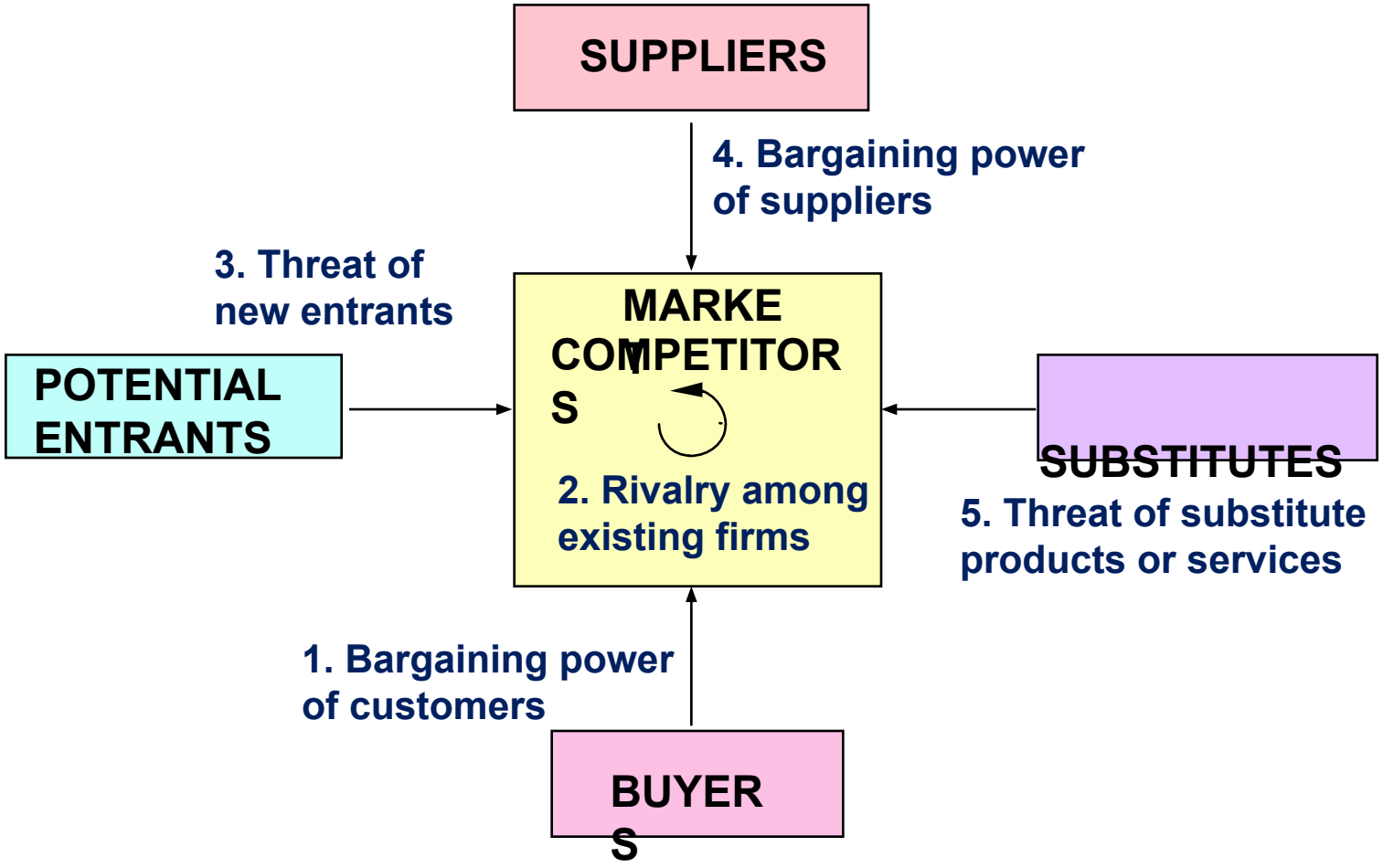
Michael Porter's "Five Forces of Competition" framework describes how the structural features of an industry influence the distribution of value created by firms within that industry.

- Ideally, firms in an industry would like to capture most or all of the economic value that they create.
- However, competitive forces operate to push that value "forward" to customers (in the form of lower prices), or in some cases, "backward" to suppliers.

*Michael E. Porter (1980). *Competitive Strategy.* Free Press, Boston.

Michael Porter developed his Five Forces concept from basic ideas in the field of industrial economics. In this set of lectures, we will see how these economic forces operate.

Forces Driving Industry Competition



Source: Porter (1980)

The previous lecture illustrated the impact of two of Porter's "Five Forces of Competition":

1. *Bargaining Power of Buyers*
2. *Rivalry Between Established Competitors*.

In this lecture we will consider how ***all*** of Porter's "Five Forces" operate.

Let's begin with the two forces implicit in the examples from last time.

According to Porter (1980), the bargaining power of buyers depends on buyer concentration, information, and other factors.

Consider Examples 1.1 and 1.2 from the last lecture.

Example 1.1

One firm able to produce one unit of "product" at cost=0.

One buyer, able to consume one unit of "product," and willing to pay $1.

High buyer concentration gives **B1** bargaining power.
(In this example of "bilateral monopoly" **F1** also has power.)

• What will be the price (P) of the "product"?	$0 < P \leq 1$
• How much value (V) is created?	$V = 1$
• Who captures that value?	"pure bargaining" case

Example 1.1

One firm able to produce one unit of “product” at cost=0.

One buyer, able to consume one unit of “product,” and willing to pay $1.

The value captured by the buyer is likely to increase with the quality of the buyer’s information - e.g., a buyer with knowledge of **F1**’s cost can drive a harder bargain than a buyer without this information.

• What will be the price (P) of the “product”?	$0 < P \leq 1$
• How much value (V) is created?	$V = 1$
• Who captures that value?	“pure bargaining” case

Example 1.2

One firm able to produce one unit of "product" at cost=0.

Two buyers, each able to consume one unit of product and willing to pay up to $1.

Competition among buyers reduces their bargaining power.

• What will be the price of the "product"?	P = 1 (increase from Ex.1)
• How much value is created?	V = 1
• Who captures that value?	"simple monopoly" case (**F1** captures all value)

Implications

Buyer power greater when:

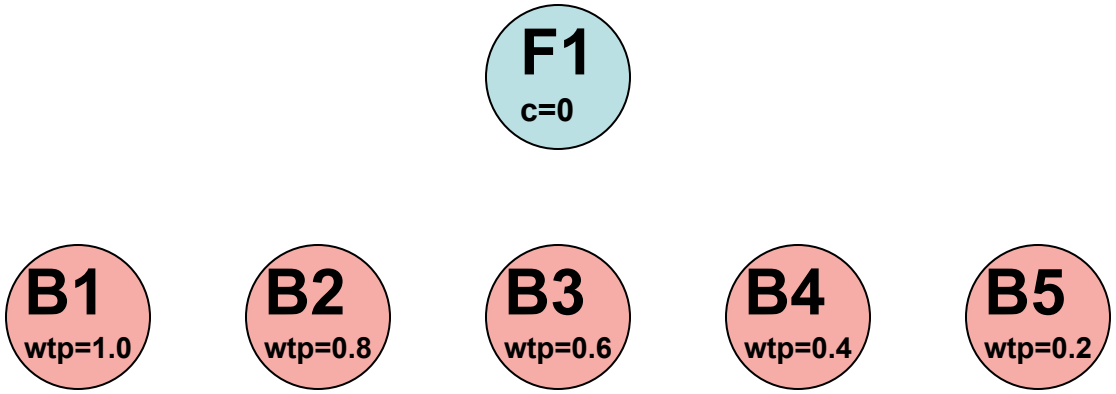
- Buyers are more concentrated
- Buyers are better informed

We also saw that an increase in producer rivalry makes the industry less attractive.

Consider examples 1.5 and 1.6.

Example 1.6

F1 can produce unlimited quantity at cost=0.



Units	Price	TR	MR
1	1.0	1.0	1.0
2	0.8	1.6	0.6
3	0.6	1.8	0.2
4	0.4	1.6	-0.2
5	0.2	1.0	-0.6

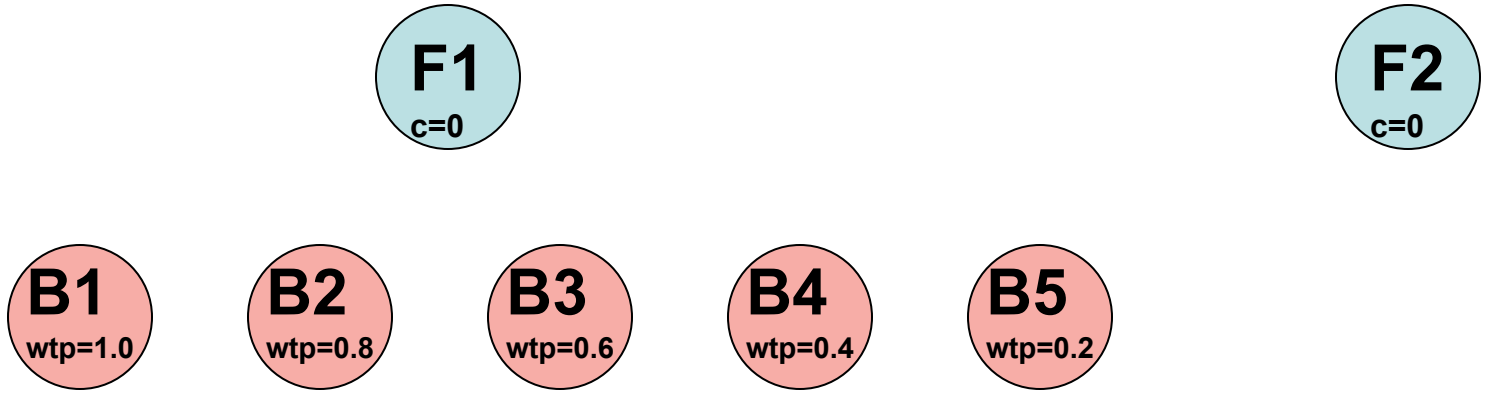
F1 is a monopolist, so there is no industry rivalry.

- What will be the price of the "product"? P = 0.6
- How much value is created? V = 2.4 (= 1.0 + 0.8 + 0.6)
- Who captures that value?

F gets 1.8
B1 gets 0.4
B2 gets 0.2
B3 gets zero

Example 1.7

F1 and F2 have unit cost=0. Neither is output constrained.

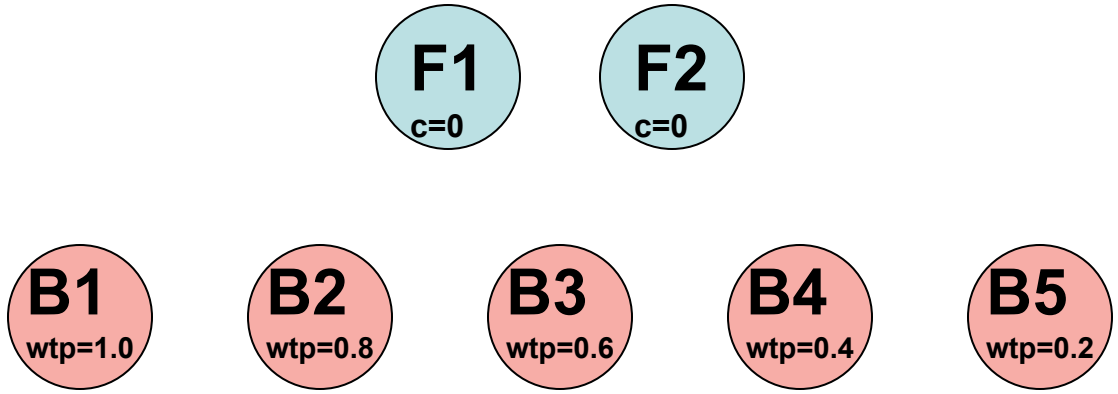


As producer concentration falls, rivalry increases.

- What will be the price of the "product"? — P = 0 ("Bertrand" competition)
- How much value is created? — V = 3.0 (= 1 + .8 + .6 + .4 + .2)
- Who captures that value? — F1 and F2 get zero; B1 gets 1.0; B2 gets 0.8; etc.

Example 1.7

F1 and F2 have unit cost=0. Neither is output constrained.



Note that if the producers had limited capacity they would capture value. Industry "excess capacity" reduces their bargaining power.

- What will be the price of the "product"? — P = 0 ("Bertrand" competition)
- How much value is created? — V = 3.0 (= 1 + .8 + .6 + .4 + .2)
- Who captures that value? — F1 and F2 get zero; B1 gets 1.0; B2 gets 0.8; etc.

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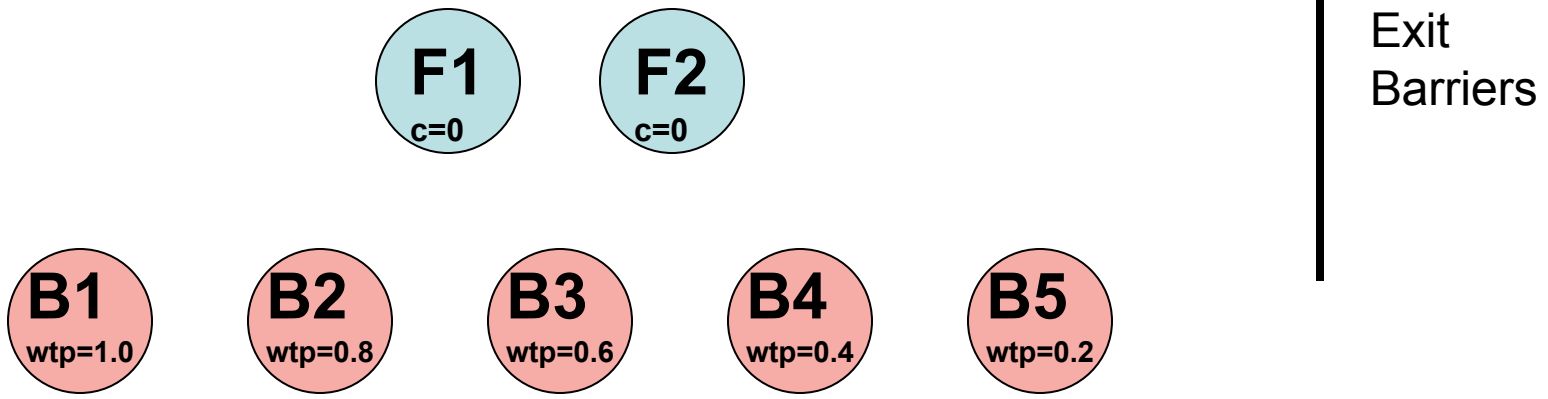


If one producer exited, the other would be profitable. In an industry with excess capacity, exit barriers prolong the period of depressed profitability.

• What will be the price of the "product"?	P = 0 ("Bertrand" competition)
• How much value is created?	V = 3.0 (= 1 + .8 + .6 + .4 + .2)
• Who captures that value?	F1 and F2 get zero B1 gets 1.0 B2 gets 0.8 etc.

Implications

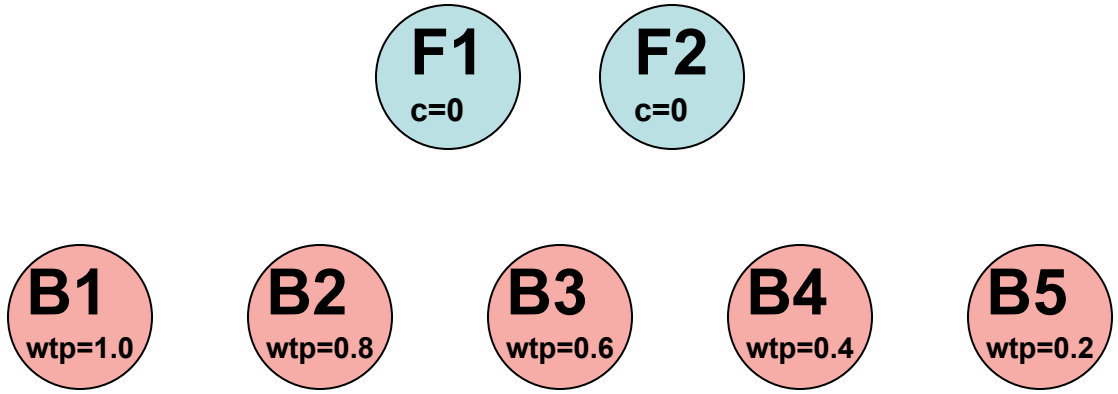
Rivalry increases with:

- More direct competitors
- Industry excess capacity
- Exit barriers

Now let's consider the threat of entry.

Example 1.7

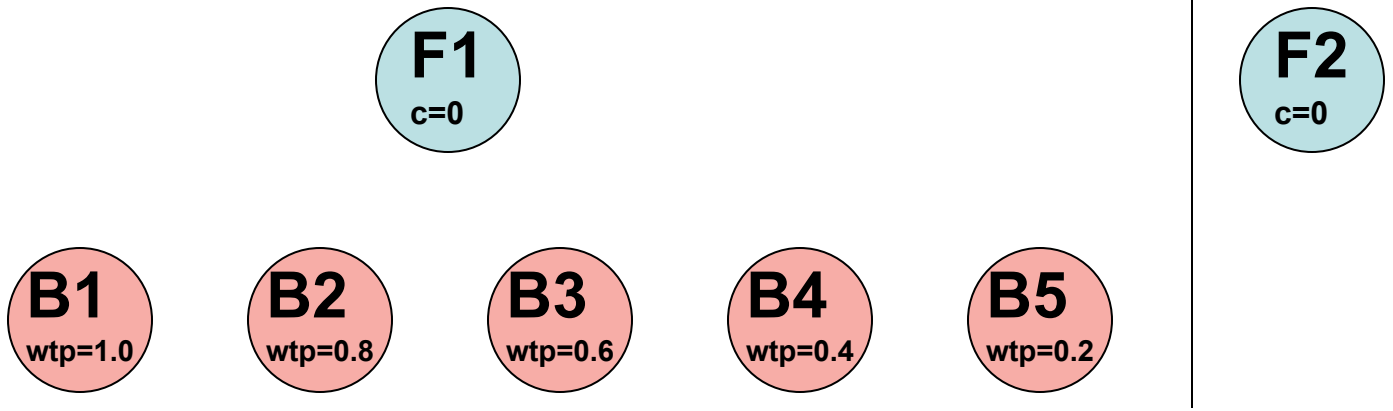
F1 and F2 have unit cost=0. Neither is capacity constrained.



In this example, **F1** and **F2** are rival producers in the industry. What happens if **F2** is only a ***potential entrant*** to the industry?

Example 1.7a

F1 and F2 have unit cost=0. Neither is capacity constrained.

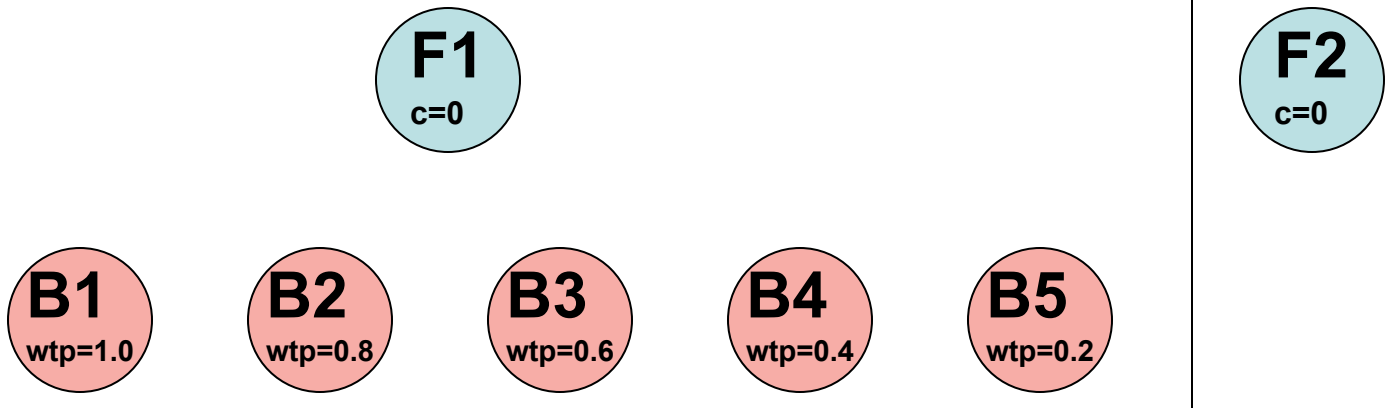


If **F2** can enter very quickly, price falls to the same level as when **F1** and **F2** are direct competitors.

The threat of entry may be enough to force **F1** to charge a low price, even if **F2** does not actually enter.

Example 1.7b

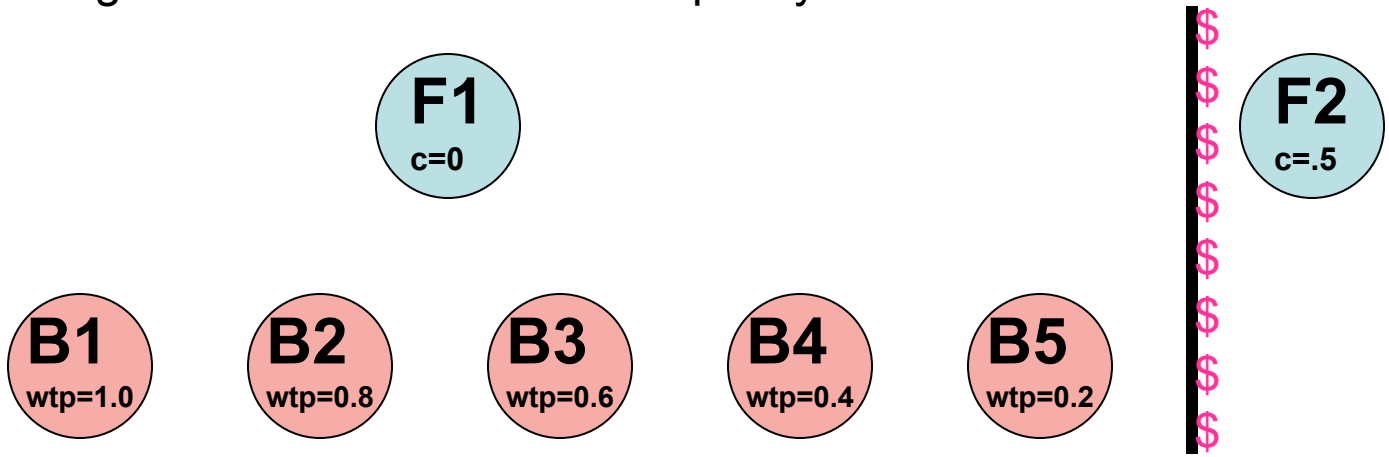
F1 and F2 have unit cost=0. Neither is capacity constrained.



If entry takes a long time, **F1** may be able to charge a relatively high price, at least initially.

Example 1.7c

F2 has higher cost. Neither firm is capacity constrained.



If entry involves substantial fixed (sunk) costs, or if potential entrants are less efficient, **F1** may be able to deter them by pricing moderately or by threatening price cuts following entry.

If the "entry barriers" are high enough, no entry will occur regardless of actions by **F1**.

Implications

Potential Entrants

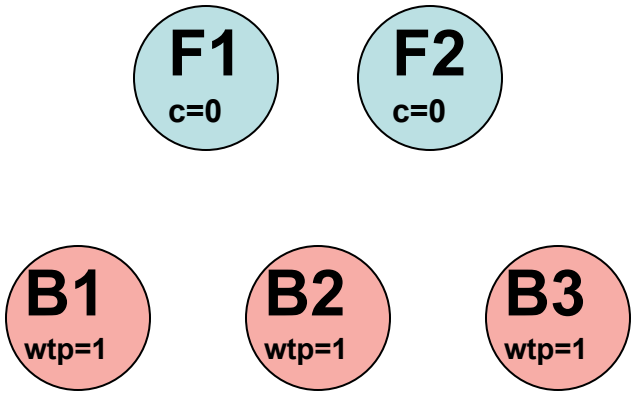
- Almost like rival producers (when entry is fast)
- Impeded by “entry barriers” (costs of entry)
- Incumbents can take actions to deter entry

Now let's consider the impact of "supplier power."

We will add supplier(s) as an additional level of potential value creation, beyond the firm-buyer interactions we have been considering so far. Adding suppliers as a second stage creates a simple "value chain".

New Example.

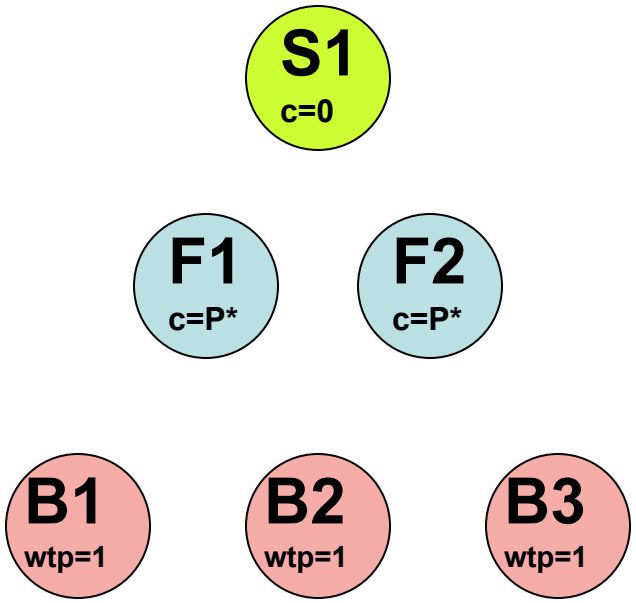
F1 and **F2** have cost=0 and each can produce one unit.
B1, **B2** and **B3** each can consume one unit and have WTP=1.



What is the product price?	P = 1
Who captures the value?	All value distributed to **F1** and **F2**.

Now assume that to produce output, **F1** and **F2** must buy one unit of input from supplier **S1** at price P*.

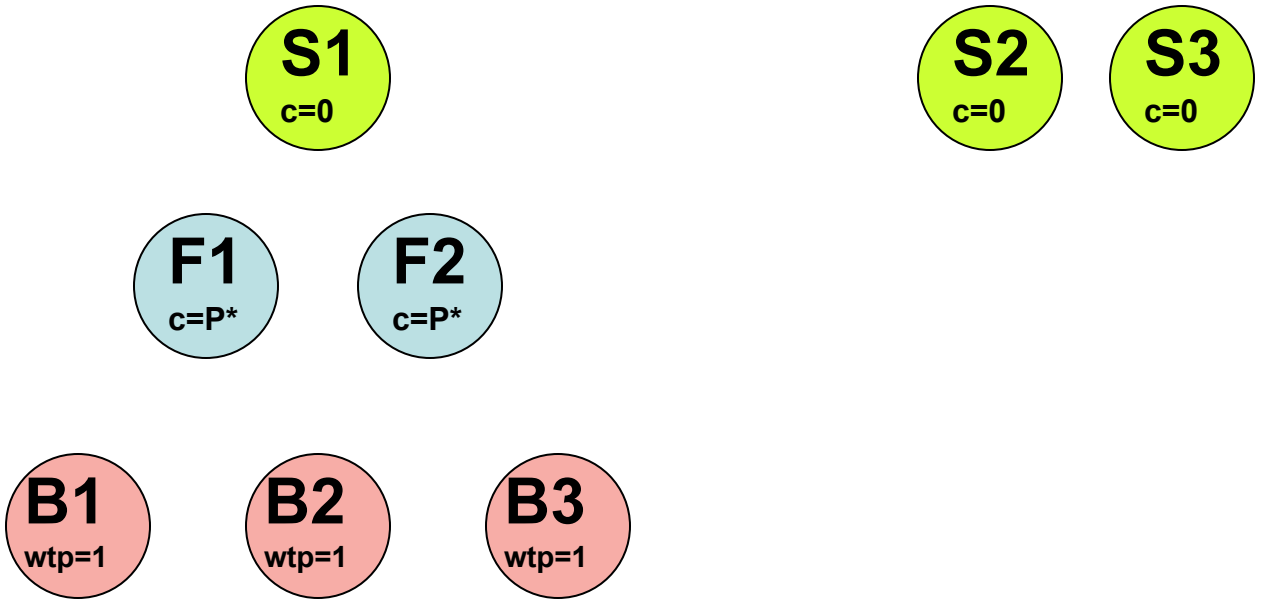
S1 has cost=0 and can produce only one unit.



Concentrated supplier is powerful and captures all the value.

What is the input price (P*)?	P*= 1
What is the product price?	P = 1
Who captures the value?	All value distributed to **S1**.

Now let's add additional suppliers.
F1 and **F2** must buy one unit of input from a supplier.
S1, S2 and **S3** have cost=0, and each can produce one unit.



What is the input price?	P*= 0
What is the product price?	P = 1
Who captures the value?	All value distributed to **F1** and **F2**.

Implications

Supplier Power

- Suppliers can siphon value from producers
- Power increases with supplier concentration
- Analysis similar to buyer power
- Important issue: At what stage(s) are profits captured within the industry "value chain"?

Application

One example of a supplier with market power is Microsoft, whose “Windows” software has long maintained a dominant share of the PC operating system market. Microsoft’s position approaches that of a single supplier selling to a large number of PC manufacturers. Not surprisingly, Microsoft enjoys high margins and captures a large share of total profits within the PC industry value chain.

Microsoft does face competitors who also supply computer operating systems, but typically the alternatives to Microsoft Windows are not close substitutes. If a close substitute for Windows emerged at a low price, surely it would threaten Microsoft’s margins. In general, the intensity of competition facing firms in an industry – or facing a specific firm like Microsoft with a “differentiated product” – depends on the closeness of substitute products. We now turn to the “threat of substitutes,” the last and most subtle of Porter’s five forces.

As we will see, substitutes act to reduce the economic value that firms in the focal industry can create. In general, the incremental value created by a given product will diminish as the substitute product becomes cheaper or better in quality.

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Let's start by elaborating the case we saw in the first lecture, in Example 1.1.

If you find it helpful to think in terms of specific examples, imagine that the "product" in this example is Apple's iPod, which we will assume exists in a unique industry by itself. The iPod faces a "substitute" industry, which consists of the set of competing MP3 players. We will start with a base case where the iPod has the entire field to itself without any substitutes. Then, we will introduce MP3 substitutes of poor quality compared to the iPod. Finally, we will see what happens when we improve the substitute's quality and/or reduce its price.

Example 1.1

One firm able to produce one unit of "product" at cost=0.

One buyer, able to consume one unit of "product," and willing to pay $1.

Consider this example in the context of the iPod: In the absence of any substitute, Apple can charge any price up to $1, and the buyer will purchase the iPod. The availability of the iPod creates $1 of value in this case.

- What is the most **B1** is willing to pay for "product"? $WTP = V = 1$
- What will be the price of the "product"? $0 < P \leq 1$
- Range of potential profit to **F1**? 0 

Example 1.1a. ***Let's introduce a "substitute" product available to buyer B1***.

One firm able to produce one unit of "product" at cost=0.

Buyer can consume one unit of either:

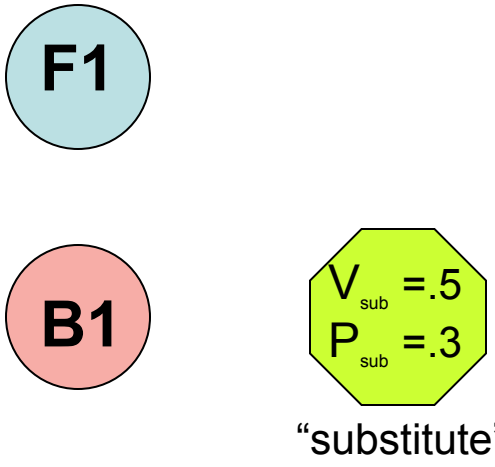
(i) the "product" produced by firm **F1**, or

(ii) a "substitute" produced by firms outside the industry.

Buyer gets $1 of consumption value from the "product."

Buyer gets $.5 of consumption value from the "substitute."

The price of the substitute is $.3



Net value to buyer of consuming product: V – P

Net value to buyer of consuming substitute: $V_{sub} – P_{sub}$ = .5 -.3 = .2

So, V-P must be > .2 for buyer to choose the product over substitute

Hence, WTP for product and maximum price is P = .8

In the context of the iPod, introduction of the substitute means that Apple can now charge a maximum price of only $.80. (The incremental value created by availability of the iPod is now $.80.)

- What is the most **B1** is willing to pay for "product"? $WTP = V – (V_{sub} - P_{sub}) = .8$
- What will be the price of the "product"? $0 < P \leq .8$
- Range of potential profit to **F1**? 0

Example 1.1b. *Let's **reduce the price** of the substitute product.*

One firm able to produce one unit of "product" at cost=0.

Buyer can consume one unit of either:

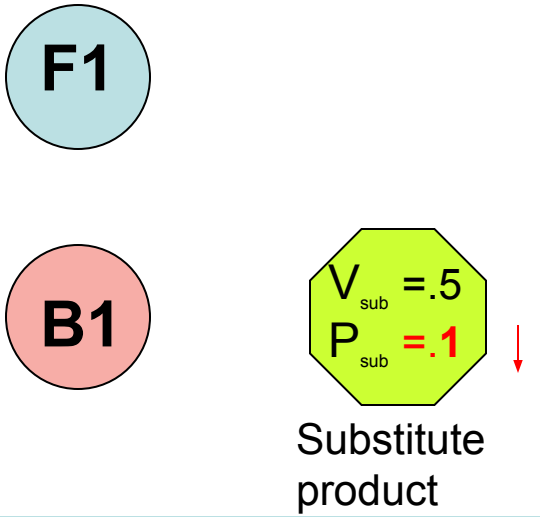
(i) the "product" produced by firm **F1**, or

(ii) a "substitute" produced by firms outside the industry.

Buyer gets $1 of consumption value from the "product."

Buyer gets $.5 of consumption value from the "substitute."

The price of the substitute is $.1



Net value to buyer of consuming product: V – P

Net value to buyer of consuming substitute: $V_{sub} - P_{sub}$ = .5 **-.1** = **.4**

So, V-P must be > **.4** for buyer to choose the product over substitute

Hence, WTP for product and maximum price is P = **.6**

In the context of the iPod, the price cut of the substitute means that Apple can now charge a maximum price of only $.60. (The incremental value created by availability of the iPod is now $.60.)

- What is the most **B1** is willing to pay for "product"? $WTP = V - (V_{sub} - P_{sub}) = .6$
- What will be the price of the "product"? $0 < P \leq .6$
- Range of potential profit to **F1**? 0

Example 1.1c. *Now, let's **improve the "quality"** of the substitute product.*

One firm able to produce one unit of "product" at cost=0.

Buyer can consume one unit of either:

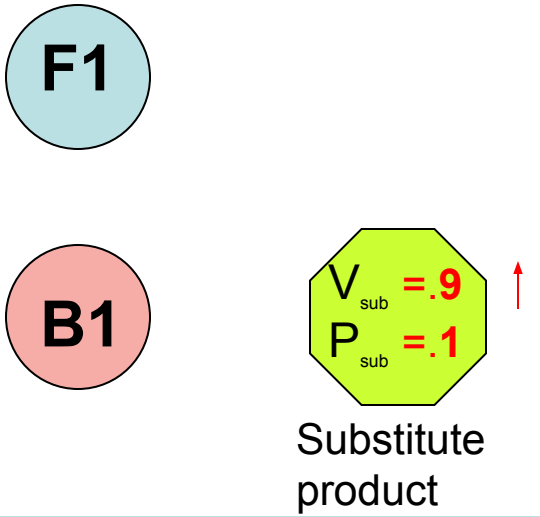
(i) the "product" produced by firm **F1**, or

(ii) a "substitute" produced by firms outside the industry.

Buyer gets $1 of consumption value from the "product."

Buyer gets $.9 of consumption value from the "substitute."

The price of the substitute is $.1



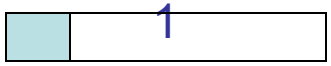
Net value to buyer of consuming product: V – P

Net value to buyer of consuming substitute: $V_{sub} - P_{sub}$ = **.9 -.1 = .8**

So, V-P must be > .8 for buyer to choose the product over substitute

Hence, WTP for product and maximum price is P = **.2**

In the context of the iPod, improvement of the substitute means that Apple can now charge a maximum price of only $.20. (The incremental value created by availability of the iPod is now only $.20.)

- What is the most **B1** is willing to pay for "product"? $WTP = V - (V_{sub} - P_{sub}) = .2$
- What will be the price of the "product"? $0 < P \leq .2$
- Range of potential profit to **F1**? 0  1

Implications

Competition from Substitutes

- Reduces buyers' WTP for the industry's product.
- Strengthens bargaining position of single buyer.
- Given many buyers with varied WTP, lowers the demand curve for the industry's product.
- If substitute price falls or quality improves, buyer's WTP for the focal industry's product falls.

Extension

Impact of Complements

- Sometimes called the "sixth industry force."
- Can be viewed as opposite of substitutes.
- *Increases* buyer's WTP for the industry's product.
- Raises the demand curve for the industry's product.
- If complement price falls or quality improves, buyer's WTP for the industry's product rises.

Conclusions

We have seen how Porter's Five Forces affect the ability of firms in an industry to capture value

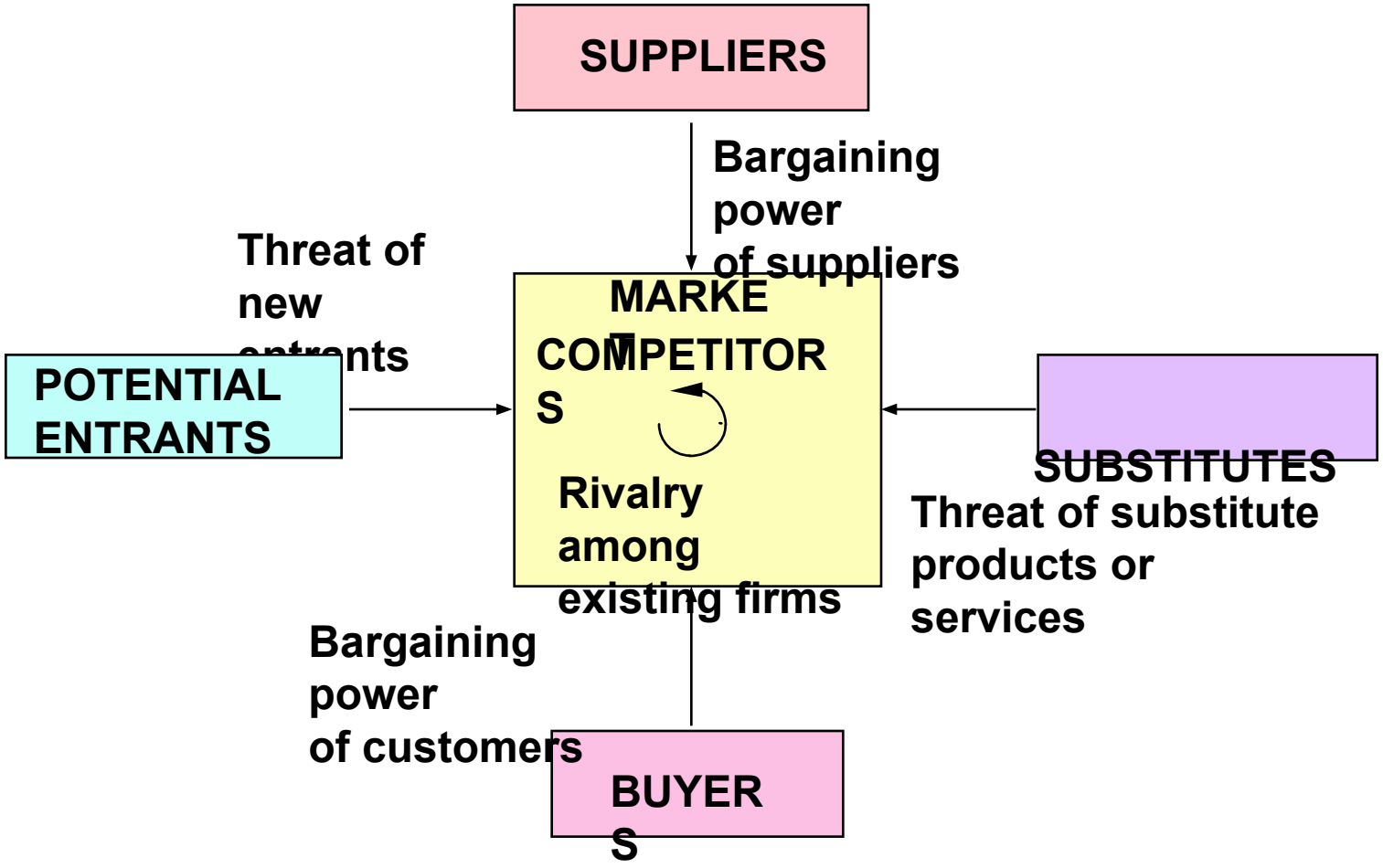
1. *Bargaining Power of Buyers*
2. *Rivalry Between Established Competitors*
3. *Threat of Entry*
4. *Bargaining Power of Suppliers*
5. *Competition from Substitutes*

Conclusions

The examples here have been relatively simple, but they illustrate the basic operation of the forces.

For more detail on Porter's Five Forces, consult your strategy textbook or Porter (1980).

Forces Driving Industry Competition



Source: Porter (1980)