Aviation Economics & Finance

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Module 10: 25 November 2015

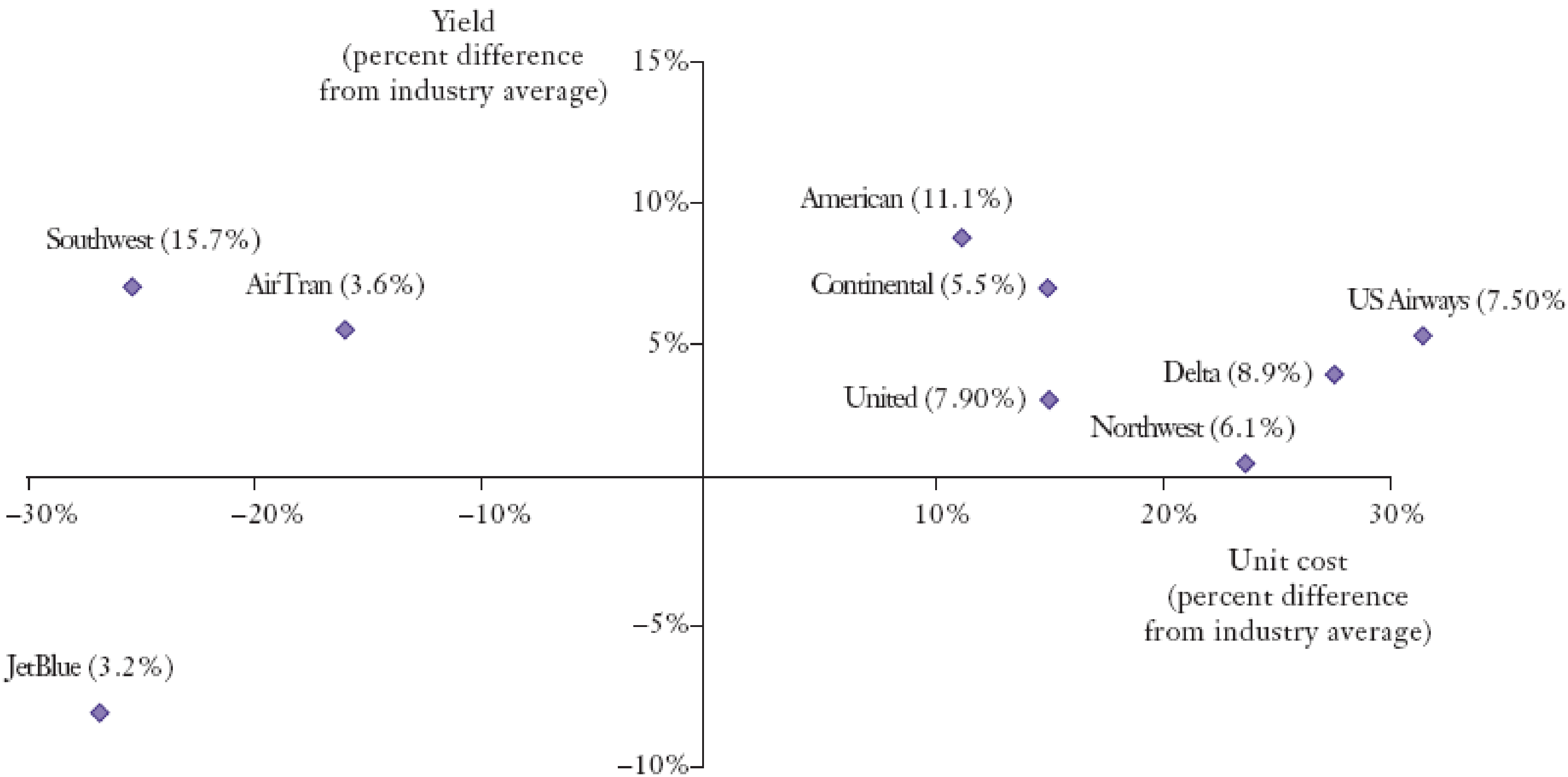
OUTLINE

A. Business Strategy and Competitive Advantage
   - Strategic positioning
   - Porter's 5 Forces Model
   - Strengths and weaknesses of the analysis framework
   - Applications
   - *Student exercise* (10 percent of final grade)

Strategic Positioning

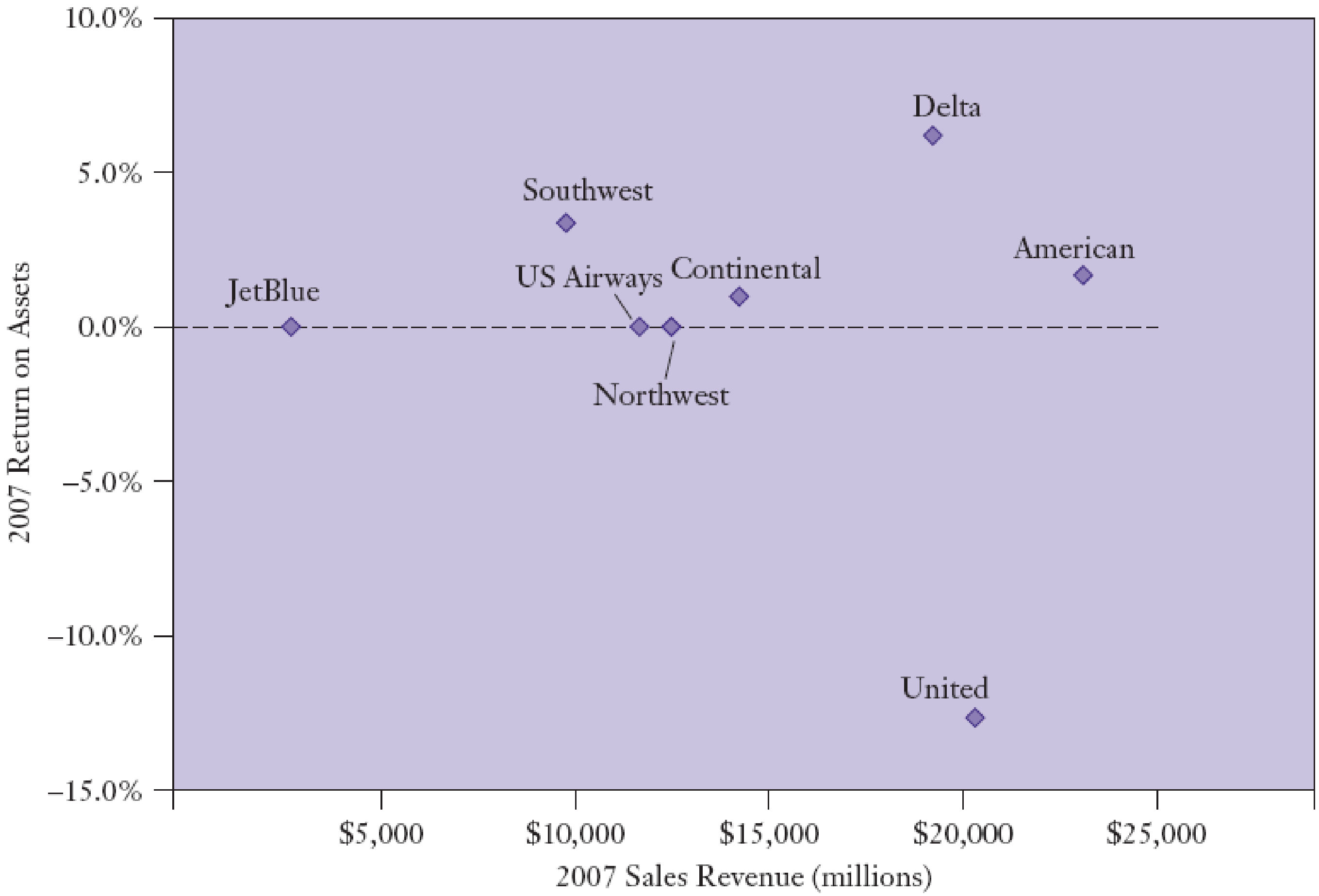
- Firms within the same industry can position themselves in different ways (e.g. LH, THY, BA, SW)
- Airlines can have different comparative advantages (e.g. THY and geography) so not all positions in strategy space will yield the same profit or have the same odds of long term survival.
- The airline's ability to create value and enjoy a competitive advantage over other carriers depends on its comparative advantage and what business model it chooses (positon)

UNIT COSTS, YIELDS, AND MARKET SHARES IN THE U.S. AIRLINE INDUSTRY, 2008



Source: Besanko, Dranove, Shanley, and Schaefer, Economics of Strategy, Fifth Edition, John Wiley & Sons New York (2010)

Revenue & Profitability in the U.S. Airline Industry, 2007



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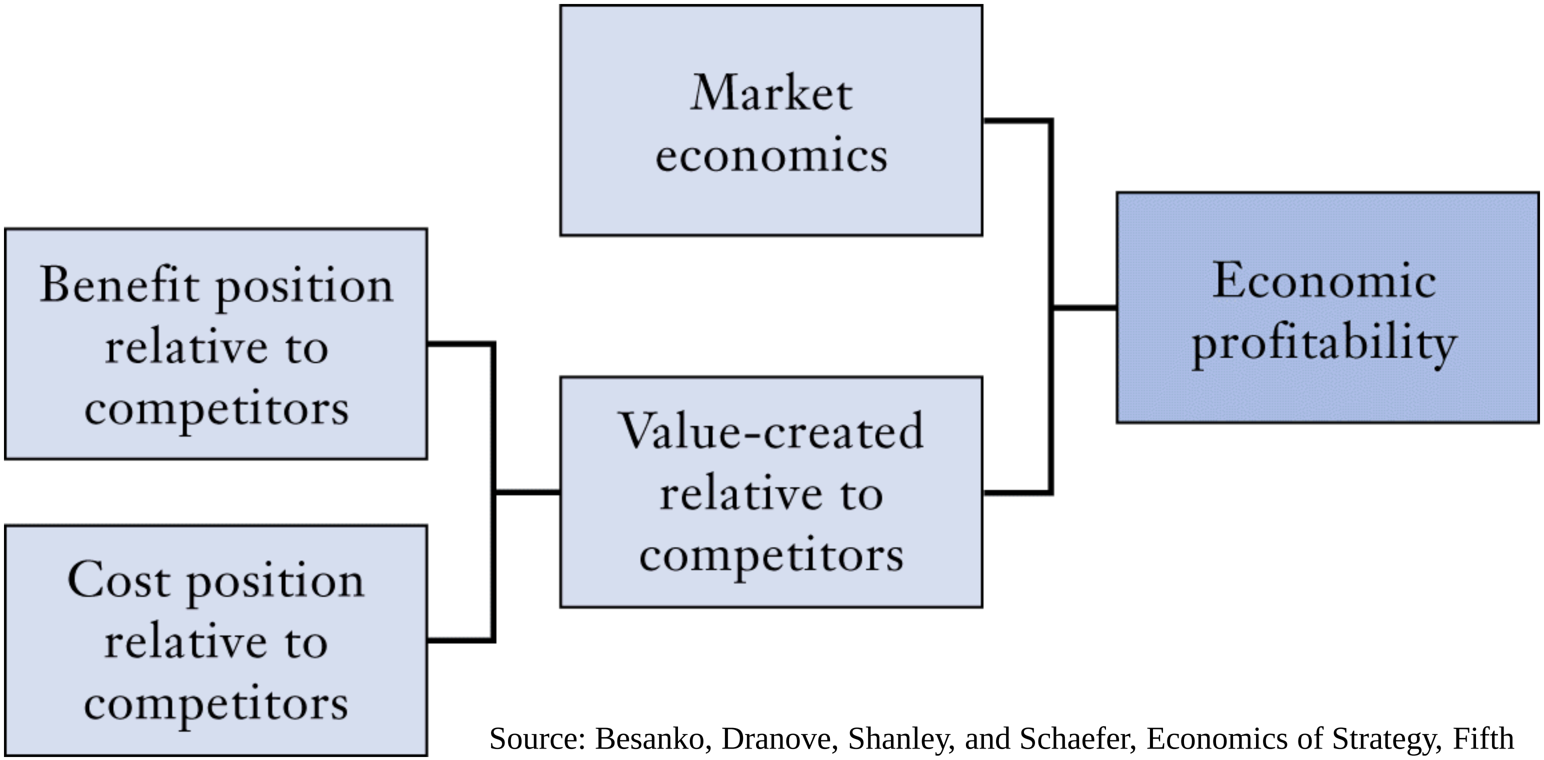
Competitive Advantage & Value Creation

- A firm with a competitive advantage in a market earns a higher rate of <u>economic</u> profit compared to the average firm in the industry.
  - It can do this only if it adds (creates) more economic value than competitors
- Economic profit earned by a firm depends on the economic attractiveness of its market as well as the economic value created by the firm – that is, is this a product/service customers want and second, can this firm deliver that service?
  - Value creation depends on both costs and the ability to add value (demand side) relative to competitors.

FRAMEWORK FOR COMPETITIVE ADVANTAGE



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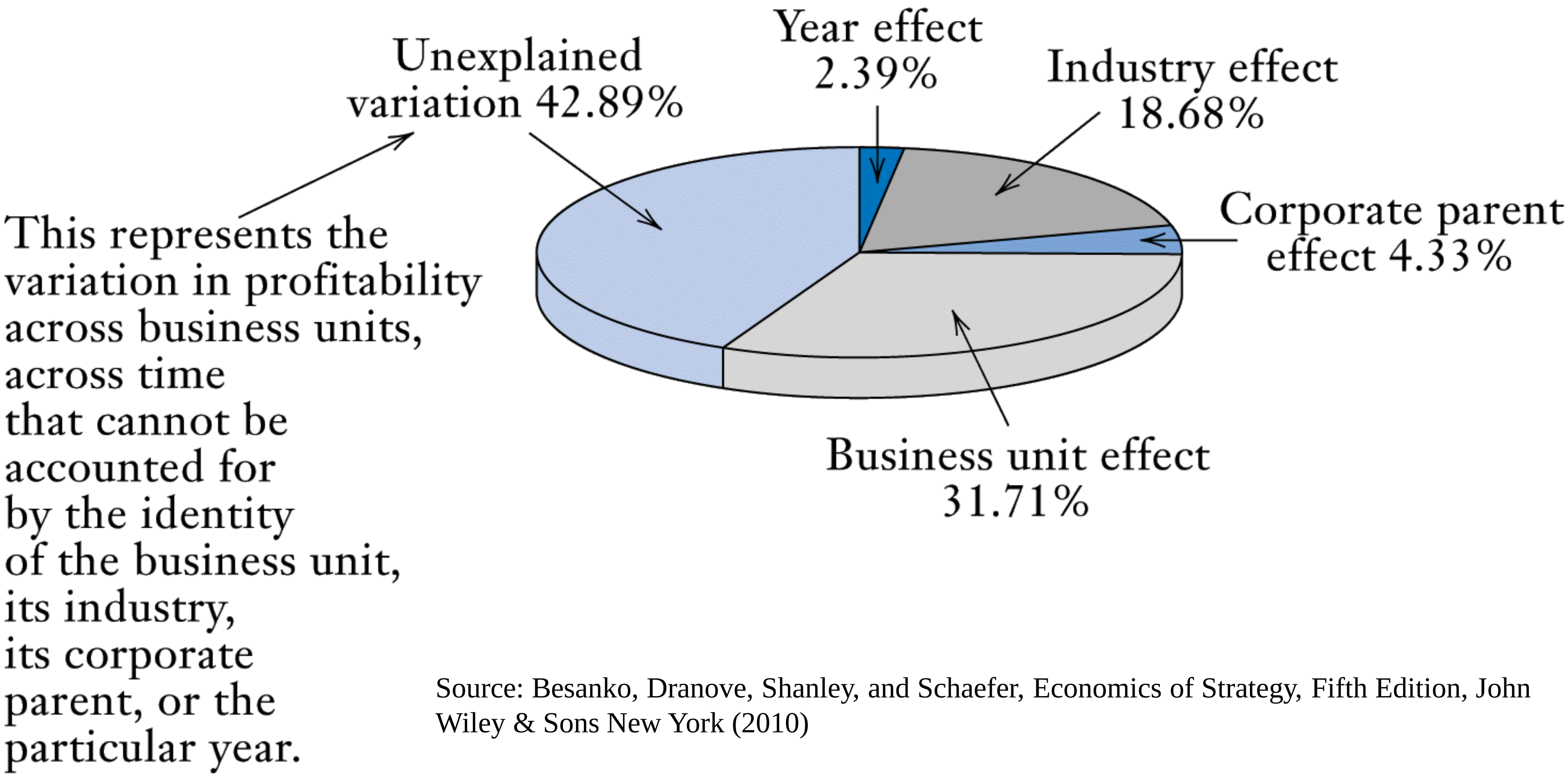
Competitive Advantage & Profitability: Evidence



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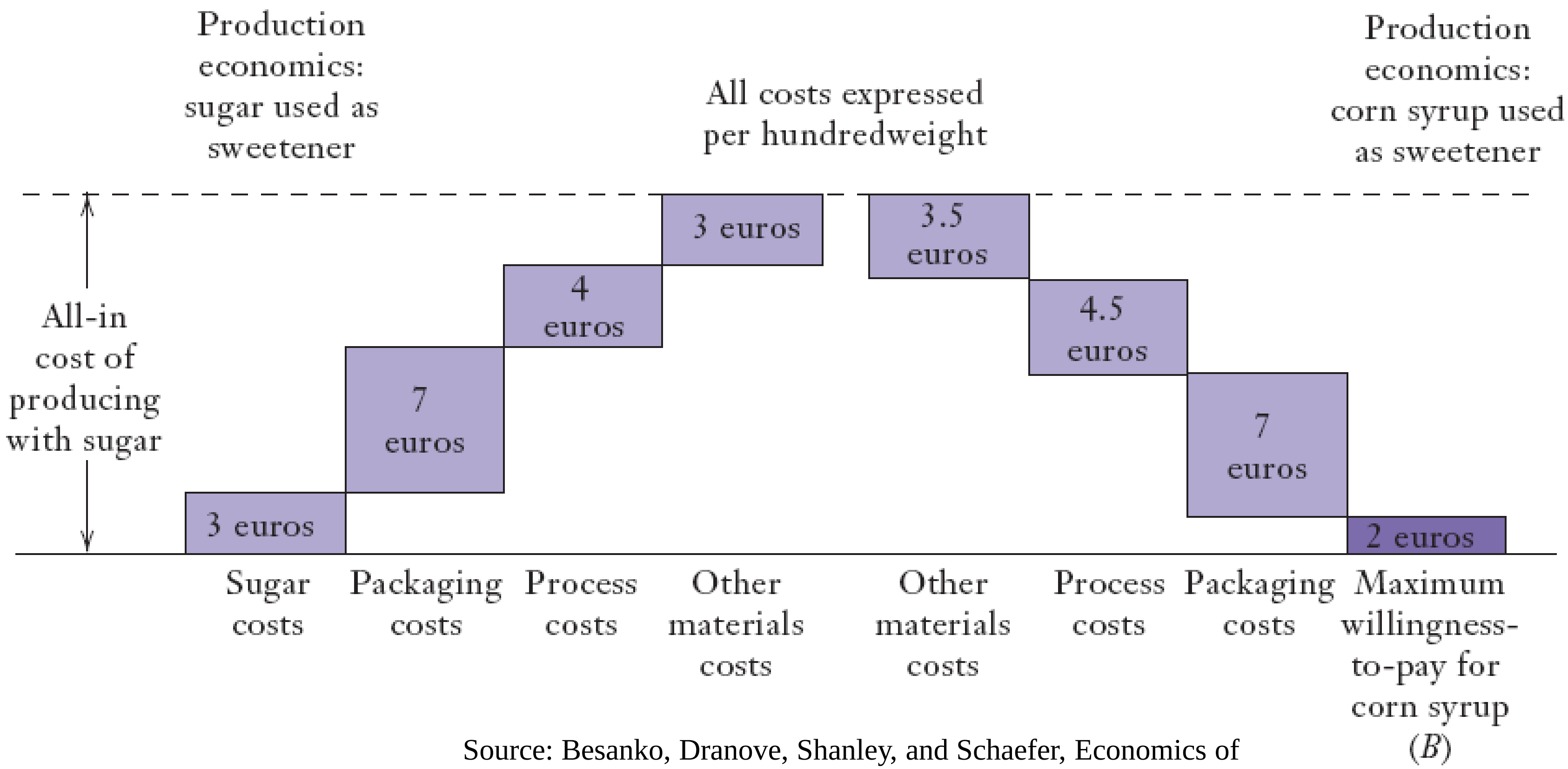
Competitive Advantage and Value Creation

- Why are airlines (firms) in business: to create customers and keep them satisfied!
- Airlines that generate and deliver value create customers.
- Delivering value, and having customers WTP for value creates opportunity for profits Businesses survive and prosper by capturing part of the value created as profits.
- Where is the profit residing?
  - WTP_{max}: point of indifference in purchasing or not.
  - Consumer Surplus: difference between WTP_{max} and current market price.
  - To compete successfully airlines need to deliver + consumer surplus (give some to customers and keep some for themselves)

A Soft Drink Producer's Maximum Willingness-to-Pay for Corn Syrup



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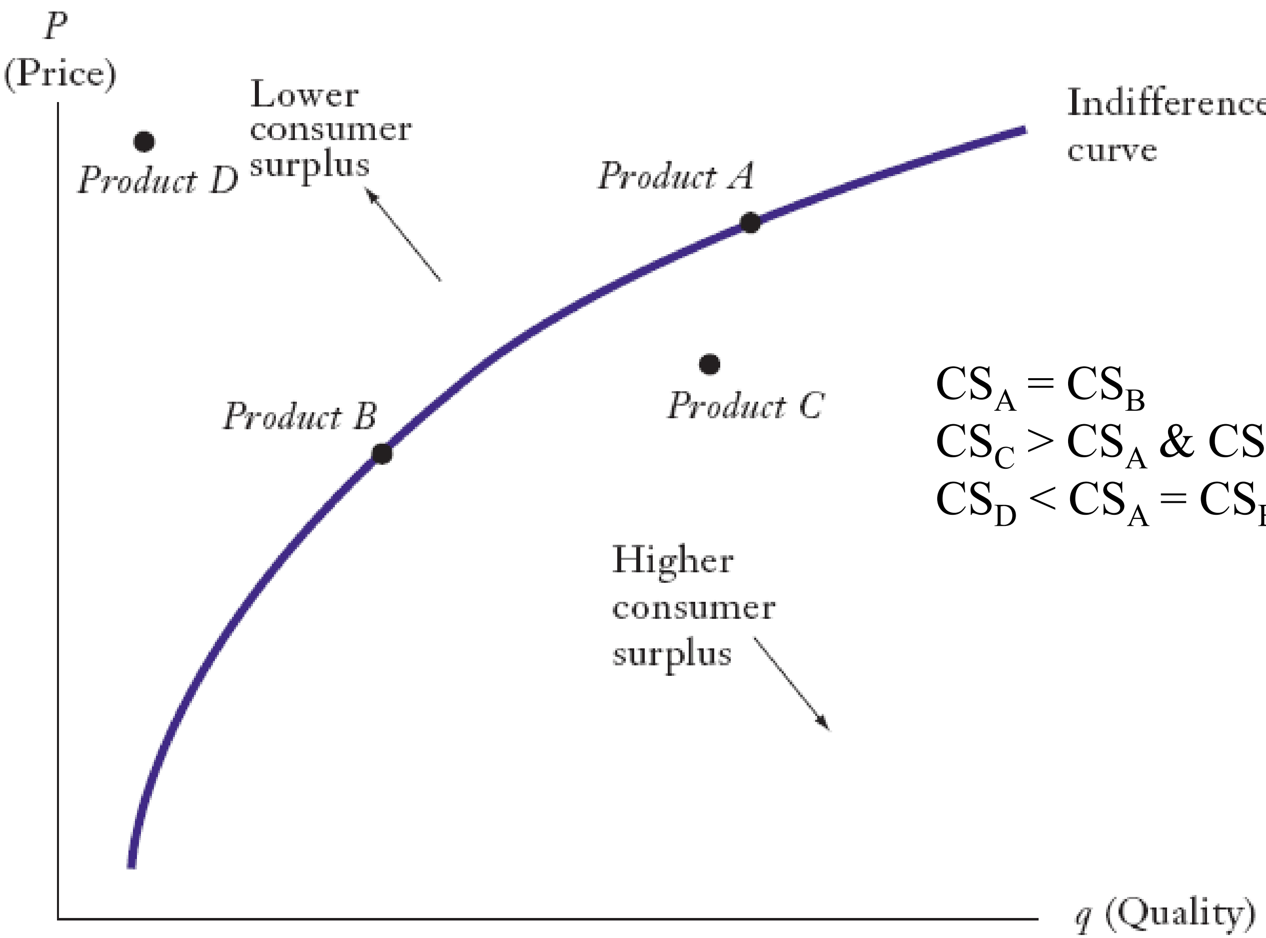
THE VALUE MAP: COMPETITION IN PRICE-QUALITY CONTINUUM



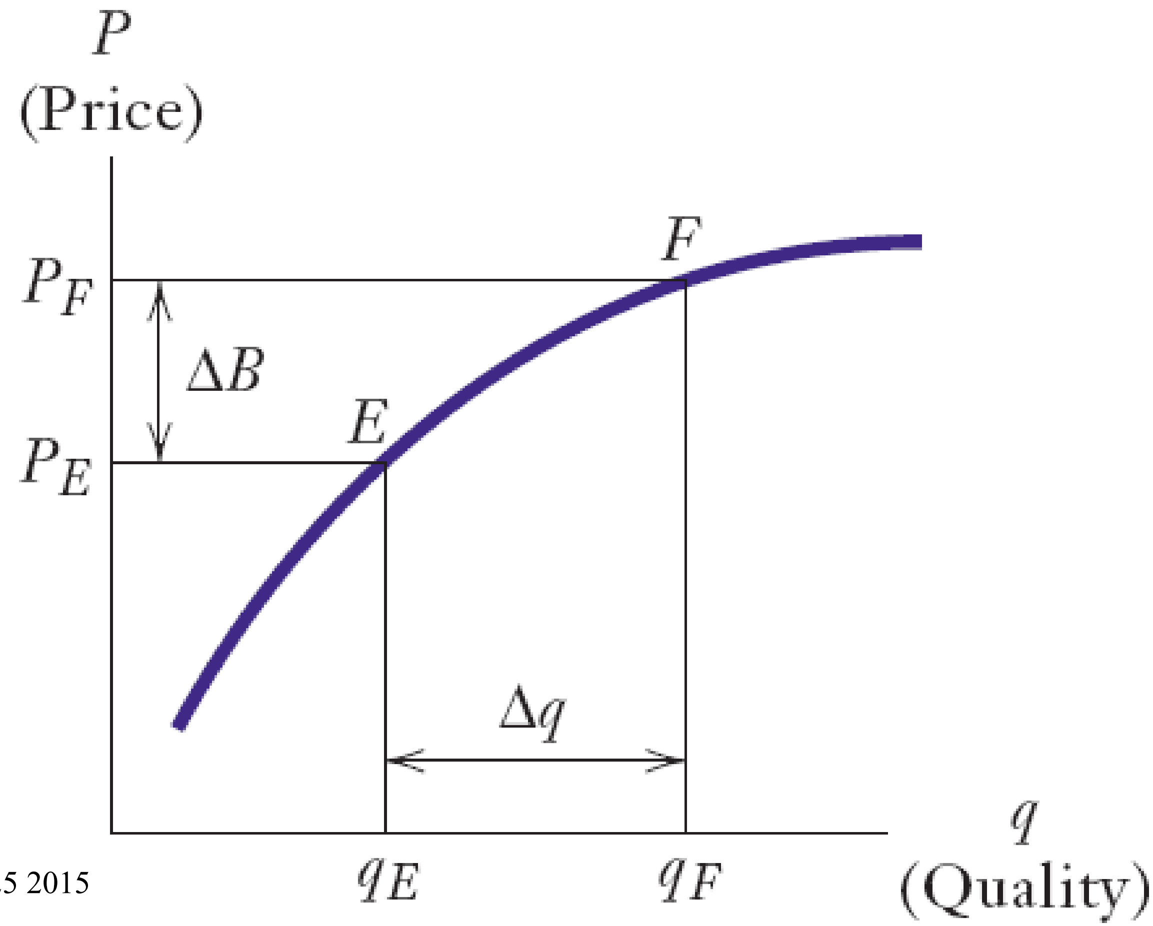
$CS_A = CS_B$

$CS_C > CS_A \;\&\; CS_B$

$CS_D < CS_A = CS_B < CS_C$

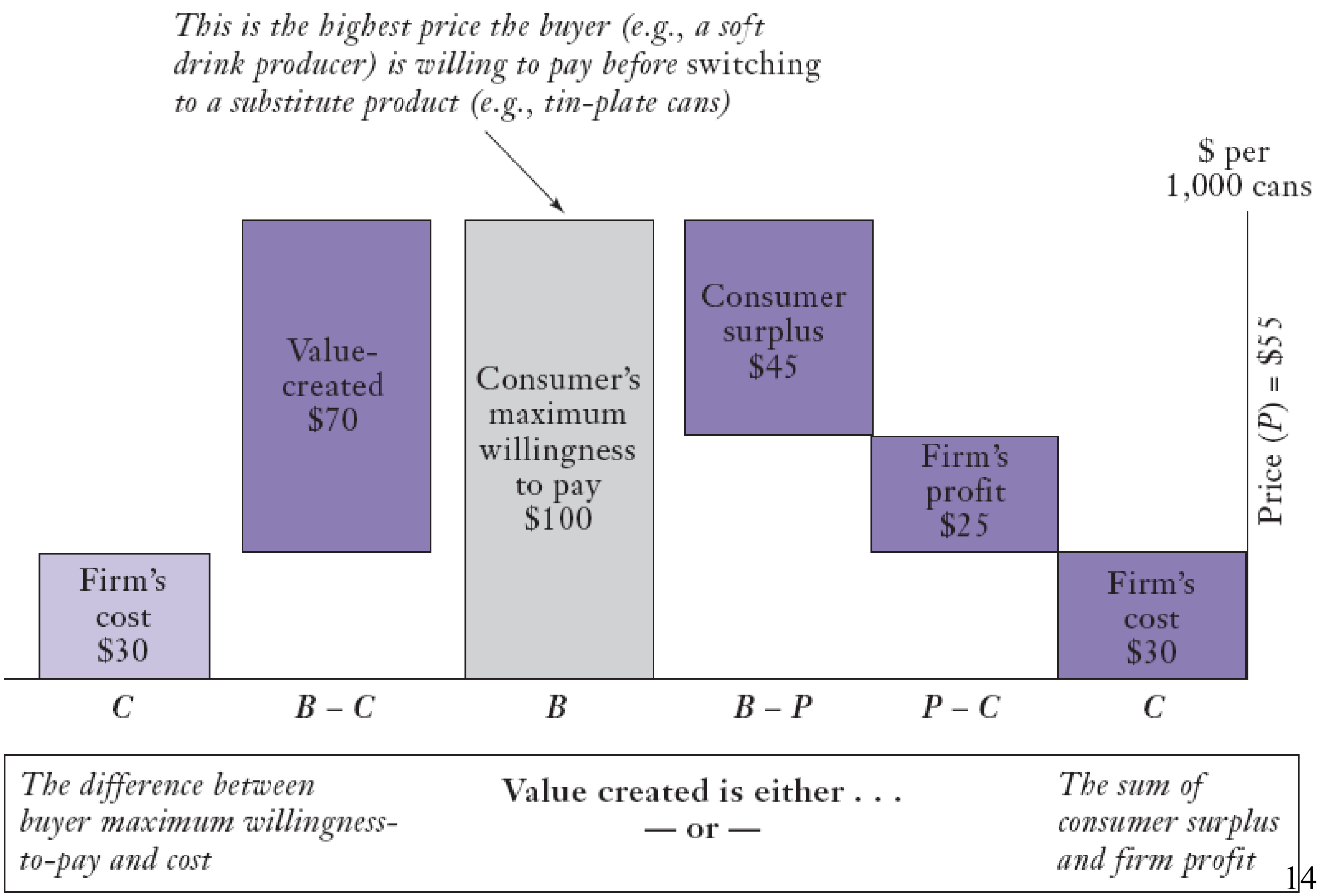
Source: Besanko, Dranove, Shanley, and Schaefer, Economics of Strategy, Fifth Edition, John Wiley & Sons New York (2010)

Indifference Curves & the Tradeoff between Price & Quality



Source: Besanko, Dranove, Shanley, and Schaefer, Economics of Strategy, Fifth Edition, John Wiley & Sons New York (2010)

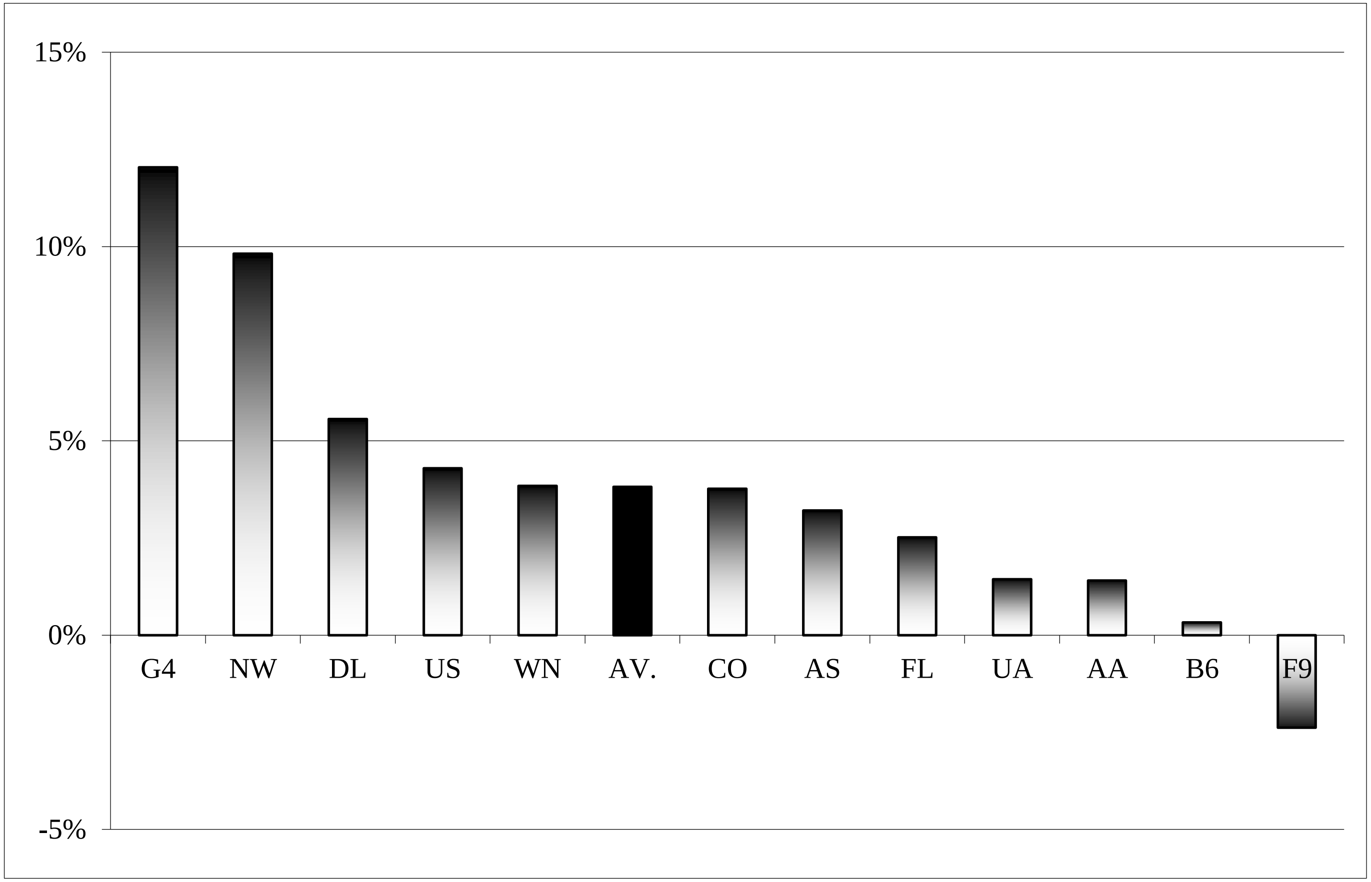
COMPONENTS OF VALUE-CREATED IN THE MARKET FOR AN INPUT - ALUMINUM CANS



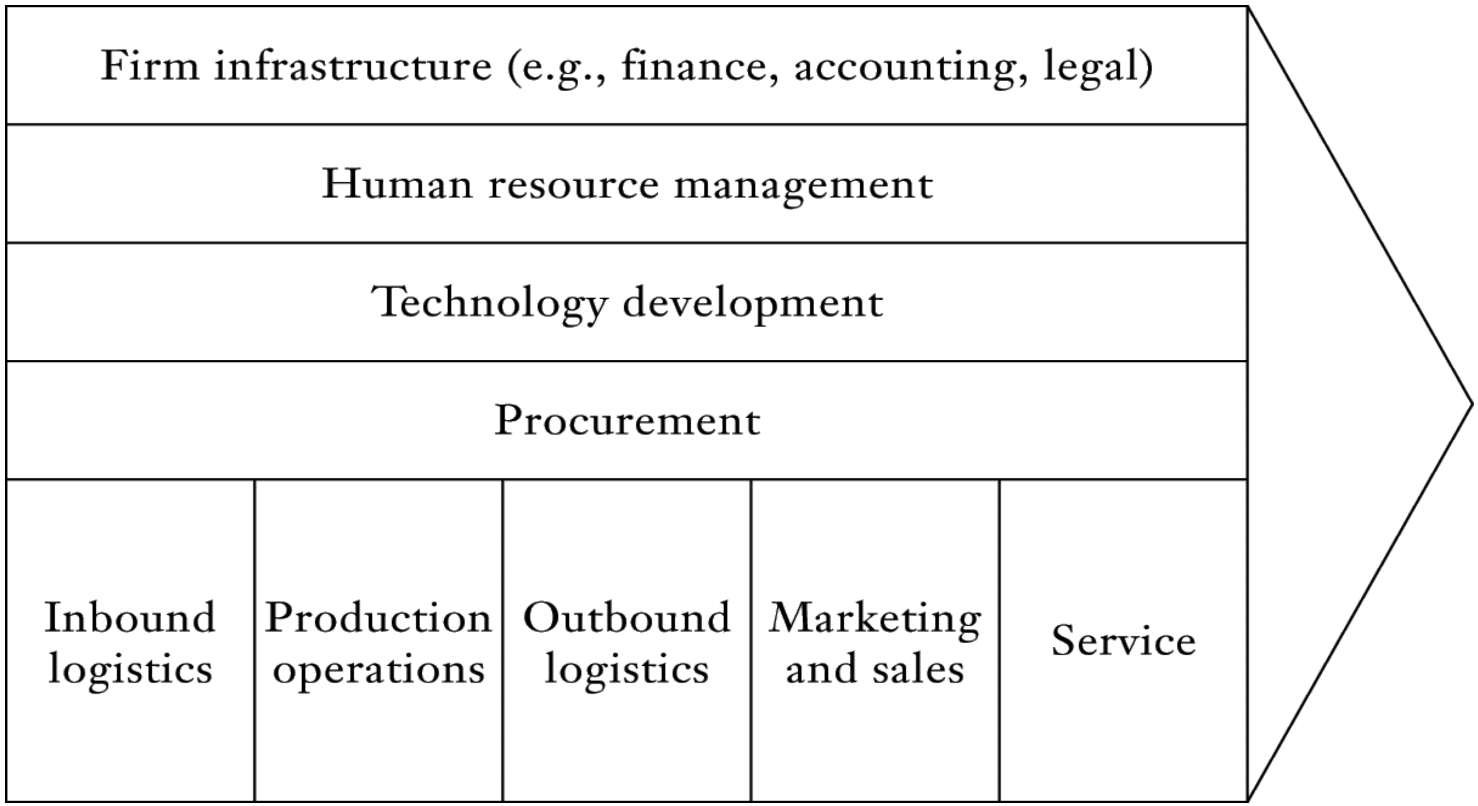
VALUE CREATION AND MARKET SEGMENTS IN AIRLINE INDUSTRY

- Value creation occurs with respect to particular customers; leisure versus business passengers
- A firm may be successful in creating positive B – C in one segment while it takes another firm to do the same in another segment; Ryanair has traditionally focused on leisure customers while easyjet (& network carriers) have focused [relatively] more on business passengers.
- Airline's prospects for continuing to create value will be affected by:
  - changes in market demand – pricing & revenue
  - changes in technology – production & costs
  - threats from other firms in the industry and from other industries – competition, market structure and substitutes (e.g. high speed rail)

ECONOMIC PROFITABILITY OF U.S. AIRLINES (2008)



VALUE CHAIN



The *value chain* or the vertical chain is the representation of the firm as a set of value creating activities.

Activities in the value chain include primary activities like production and marketing as well as support activities such as human resource management and finance.

VALUE ADDED ANALYSIS

- *Value added analysis:* identifies where the value creation occurs along the value chain.
- Value added is difference [incremental value] between market prices of produced services and final price(s) of consumed (sold) services.
- Source of value:
  - configuring its value chain differently from competitors (THY versus Pegasus)
  - performing the activities more effectively than the rivals (Ryanair versus LH)

STRATEGIC POSITIONING IN STRATEGY SPACE

- Choice of [airline] business model is a choice on where to be in strategy space.
- Porter (1985) referred to two *generic strategies*
  - *cost leadership* - Ryanair
  - *benefit leadership – product differentiation – network carrier*
- Alternatively a firm can use a narrow *focus strategy*
  - *Geographic focus (Alaska)*
  - *Market segments (tour operator)*
  - *Lowest fare - Ryanair*

PORTER'S GENERIC STRATEGIES

Scope?	*Position?*	*Type of advantage?*	*Strategic logic?*
Broad	Company's products can be produced at lower *cost per unit* than competitors' products	*Cost leadership*	*Company can either . . .* • *Undercut rivals' prices and sell more than they do or . . .* • *Match rivals' prices and attain higher price-cost margins than they can*
Broad	Company's products are *capable* of commanding a *price premium* relative to competitors	*Benefit leadership*	*Company can either . . .* • *Match rivals' prices and sell more than they do or . . .* • *Charge price premium and attain higher price-cost margins than they can*
Narrow		*Focus*	*Company configures its value chain so as to create superior economic value within a narrow set of industry segments. Within these segments, the firm may have lower cost per unit than its broad-scope competitor, or it may be capable of commanding a price premium relative to these competitors, or both.*

Source: Besanko, Dranove, Shanley, and Schaefer, Economics of Strategy, Fifth Edition, John Wiley & Sons New York (2010)

The Strategic Logic of Cost Leadership

- Firm F offers lower quality than the rest of the industry (E) and has much lower costs than the rest of the industry
- If the cost leader attains consumer surplus parity with the rest of the firms in the industry it earns a higher profit margin

  $C_E - C_F > P_E - P_F$

  $P_F - C_F > P_E - C_E$

The Strategic Logic of Benefit Leadership

- Firm F offers higher benefit than the rest of the industry (E) at a slightly higher cost
- If the benefit leader attains consumer surplus parity with the rest of the firms in the industry it earns a higher profit margin

  $P_F - P_E > C_F - C_E$

  $P_F - C_F > P_E - C_E$

It can be argued that firms should not pursue both - Firms that pursue both could get stuck in the middle and have neither advantage.
-is this sensible?

STUCK IN THE MIDDLE?

- In reality, however, successful firms appear to have both types of advantages.
  - Firms that offer high quality products expand market share and enjoy cost advantages due to economies of scale, scope, density and learning
  - Learning economies may be more important for high quality production than for low quality production
  - High quality producers may also be more efficient producers
- Trying to attain excellence in all dimensions often leads to unfocussed decision making.
- Trying to achieve cost advantage and benefit advantage may lead to confusion and tension trying to imitate "best practices."

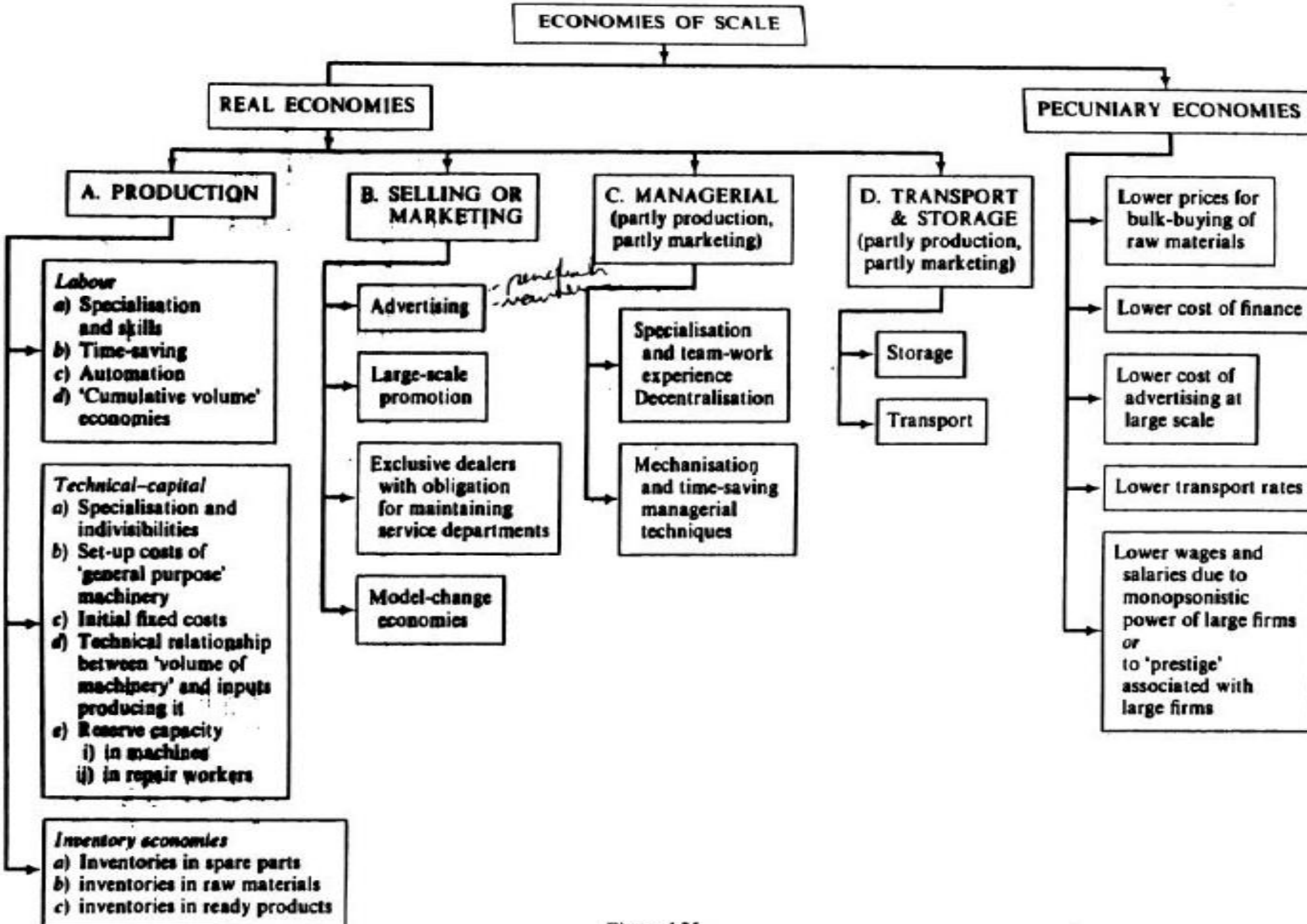

ECONOMIES OF SCALE
REAL ECONOMIES
PECUNIARY ECONOMIES
A. PRODUCTION
B. SELLING OR MARKETING
C. MANAGERIAL (partly production, partly marketing)
D. TRANSPORT & STORAGE (partly production, partly marketing)
Labour
a) Specialisation and skills
b) Time-saving
c) Automation
d) 'Cumulative volume' economies
Technical–capital
a) Specialisation and indivisibilities
b) Set-up costs of 'general purpose' machinery
c) Initial fixed costs
d) Technical relationship between 'volume of machinery' and inputs producing it
e) Reserve capacity
i) in machines
ii) in repair workers
Inventory economies
a) Inventories in spare parts
b) inventories in raw materials
c) inventories in ready products
Advertising
Large-scale promotion
Exclusive dealers with obligation for maintaining service departments
Model-change economies
Specialisation and team-work experience
Decentralisation
Mechanisation and time-saving managerial techniques
Storage
Transport
Lower prices for bulk-buying of raw materials
Lower cost of finance
Lower cost of advertising at large scale
Lower transport rates
Lower wages and salaries due to monopsonistic power of large firms
or
to 'prestige' associated with large firms

Figure 4.35

INDUSTRY ANALYSIS

INDUSTRY ANALYSIS

Industry analysis provides an :

- assessment of industry and firm performance (measured in various dimensions)
- identification of factors that affect performance (external and internal)
- determination of the effect of changes in the business environment on performance (e.g. deregulation)
- assessment of the effectiveness of strategies (good firm- wrong strategy, bad firm-correct strategy, good firm-correct strategy, bad firm-wrong strategy)

PORTER'S FIVE FORCES FRAMEWORK

- Porter has developed a framework called five forces framework to identify the economic forces that affect **industry** profits
- The five forces are
  - Internal rivalry
  - Entry
  - Substitutes and complements
  - Supplier power
  - Buyer power

THE FIVE FORCES FRAMEWORK

Intra-Industry Competitive Rivalry

- Internal rivalry is competition for market share among existing (and potential) firms in the industry
- Competition could be one of more strategic dimensions: price, quality, service, location, access for example
- Price Competition erodes the price cost margin and profitability
- Competition on non-price dimension can drive up costs
- What drives increased rivalry?
  - Presence of many sellers
  - Differential costs among firms
  - Excess capacity
  - Undifferentiated products/Low switching costs
  - Easy observability of prices and sale terms (e.g. Internet and airfares)

Internal Rivalry: Conditions that Heat up Price Competition

- Inability to adjust prices quickly
- Large and infrequent sales orders
- Absence of "facilitating practices"
- Absence of a history of cooperative pricing
- Strong exit barriers

THREAT OF ENTRY

Entry hurts the incumbents in two different ways

- Entry cuts into the incumbents' market share – depends on strategic response
- Entry intensifies internal rivalry and leads to a decline in price cost margin – but price elastic market may grow overall (e.g. entry by carriers to increase capacity and grow the market)

Factors that Affect the Threat of Entry

- Minimum efficient scale relative to the size of the market
- Brand loyalty of consumers and value placed by consumers on reputation
- Entrants' access to critical resources such as raw material, technical know how and distribution network
- Network externalities that give the incumbents the benefit of a large installed base
- Government policies that favor the incumbents
- Incumbents reputation regarding post-entry competitive behavior

Substitutes and Complements

- Substitutes erode the demand for the industry's output
  - When the price elasticity of demand is large, pressure from substitutes will be significant
- Complements boost industry demand
- Change in demand can in turn affect internal rivalry and entry/exit

Supplier Power

Suppliers can erode the profitability of downstream firms

- if the upstream industry is concentrated
- if the customers are locked into the relationship through relationship specific assets

The factors that determine supplier power

- Relative concentration of upstream and downstream firms
- Purchase volume by downstream firms
- Extent of relationship specific investments
- Threat of forward integration by suppliers
- Suppliers’ ability to price discriminate

Assessing Buyer Power

- Factors that determine buyer power are analogous to those that determine supplier power
- Even when there is no buyer power, willingness to shop for the best price can create internal rivalry among sellers and make the market price competitive

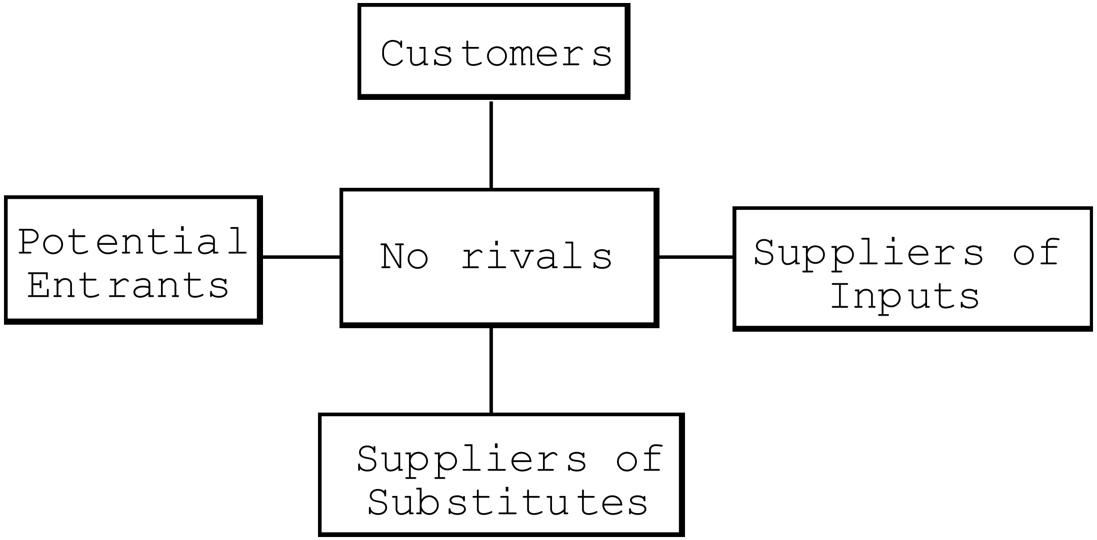
STRATEGIES TO COPE WITH THE FIVE FORCES

- Firms can position themselves for a cost advantage or a differentiation advantage
- Firms can seek an industry segment where the five forces are less severe
- Firms can try to change the five forces
  - by reducing internal rivalry by increasing the switching costs,
  - by adopting entry deterring strategies or
  - by reducing supplier/buyer power through tapered vertical integration
- Coopetition (Brandenberger and Nalebuff) - adopt a ‘value net’

THE VALUE NET CONCEPT

- The value net consists of
  - suppliers
  - customers
  - competitors and
  - complementors (producers of complementary goods and services
- Considers both threats and opportunities posed by the five forces

How to think about airline competition-Market Power



SOURCES OF BENEFITS & COSTS

- TR(y) reflects the dependence of the firm's <u>short term</u> revenues on its output.
  - This relationship is general enough to be handle discussions of increased sales to one market or the development of new markets.
- Effects of price changes are implicit in the relationship TR(y) = p(y)y.
- Other sources of revenue can be explicitly accounted for:
  - TR(y, product position, …) - build understanding of customer decision to purchase
  - TR(y, advertising, …) - build understanding of relationship between customer information and purchase decision
  - TR(y, quality, …) - build understanding of effect of product/service quality and customer purchase decisions
  - TR(y, organizational design, …) - build understanding of relationship between incentives and sales performance
  - TR(y, "environment," …) - build understanding of the effects of factors beyond management's control

SOURCES OF BENEFITS & COSTS

TC(y) reflects the dependence of the firm's short term costs on its output.

- Effects of input price changes are implicit in the relationship TC(y) = minimum direct outlay on production of y (cost efficiency)
- Other sources of costs can be explicitly accounted for:
  - TC(y, capacity, product diversity, …) - build understanding of the scale and scope effects on costs
  - TC(y, product position, …) - build understanding of costs of different designs
  - TC(y, quality, …) - build understanding of relationship between costs and quality
  - TC(y, experience, …) - build understanding of effect of experience on costs
  - TC(y, organizational design, …) - build understanding of relationship between incentives and costs
  - TC(y, "environment," …) - build understanding of the effects of factors beyond management's control

Comparative Analysis Matrix

		Firm 1		Firm 2	
Key Factors	Weighting	Rating	Summary Score	Rating	Summary S
Market Share	1.25	2	2.50	x	Y
Price Competitiveness	3.75	3	11.25	x	Y
Management	1.75	2	3.50	x	Y
Financial Position	2.00	2	4.00	x	Y
Customer Loyalty	2.25	2	4.50	x	Y
Operational Effectiveness	2.75	3	8.25	x	Y
Cost Structure	5.75	2	11.50	x	Y
Total	5.50	2	11.00	x	Y

Factors, weightings and rating are based on accumulated knowledge, research and analysis.

CORE COMPETENCY EVALUATION MATRIX

Core Competencies	Weighting	Rating	Summary Score
Strengths (examples)			
1.Airgo increased fleet size			
2. Increased seat capacity through densification			
3. Strong 1st Quarter profits			
4. Increased aircraft utilization			
5. Reduced flight turnaround time			
6. Price competitive with new yield management system			
Weaknesses (examples)			
7. Low loaf factor relative to competitor LCCs			
8. Fewer destinations coverage than other LCCs			
9. Lack of flexibility in shifting network between seasons			
10. Lack of incentive contracts for cabin crew for inflight sales			

Factors, weightings and rating are based on accumulated knowledge, research and analysis.

A Decision Framework

1. Model Sources
   - demand analysis
2. Prepare evidence
   - demand estimation
3. Evaluate quality of evidence

1. Model Sources
   - cost analysis
2. Prepare evidence
   - cost estimation
3. Evaluate quality of evidence

$$EV = \sum_{t=0}^{T} \frac{E(TR_t) - E(TC_t)}{(1+r)^t} \,,\; Var(V)$$

4. Assess risks

Determine "cost of capital"

How to Think about Strategy

	Mechanical Model	Natural Model
Scientific Leaders	Newton Galileo Descartes	Einstein Quantum Physics Theorists Chaos Theorists
Central Metaphors	Machines Clocks	Organisms Ecologies
Strategic Objectives	Optimum design Consistency	Adaptation Continuous Improvement
Cultural Expressions	Classical Music Renaissance painting	Blues and jazz Postmodern art
Leadership Implications	Command and control	Autonomy for employees Articulation of vision
Sources of Value	Land Energy Materials	Information Knowledge
Management Objective	Economies of scale	Unity of purpose
Structure	Hierarchies	Self-organizing teams
Organizing Principles	Division of labor	Synthesis of minds
Sources of Economic Authority	Producers	Consumers
Principal Economic Constraint	Capital	Creativity

END OF MODULE 10

APPENDIX

SUPPLIER POWER
Supplier concentration
Importance of volume to supplier
Differentiation of inputs
Impact of inputs on cost or differentiation
Switching costs of firms in the industry
Presence of substitute inputs
Threat of forward integration
Cost relative to total purchases in industry

BARRIERS TO ENTRY
Absolute cost advantages
Proprietary learning curve
Access to inputs
Government policy
Economies of scale
Capital requirements
Brand identity
Switching costs
Access to distribution
Expected retaliation
Proprietary products

DEGREE OF RIVALRY
-Exit barriers
-Industry concentration
-Fixed costs/Value added
-Industry growth
-Intermittent overcapacity
-Product differences
-Switching costs
-Brand identity
-Diversity of rivals
-Corporate stakes

THREAT OF SUBSTITUTES
-Switching costs
-Buyer inclination to Substitute
-Price-performance trade-off of substitutes

BUYER POWER
Bargaining leverage
Buyer volume
Buyer information
Brand identity
Price sensitivity
Threat of backward integration
Product differentiation
Buyer concentration vs. industry
Substitutes available
Buyers' incentives

TURKISH AIRLINES

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Bargaining power of Buyers –

Question	Yes (Low Threat)	No (High Threat)	Cannot Assess
Are there a large number of buyers relative to the number of firms in this business?			
Do you have a large number of customers, each with relatively small purchases?			
Does the customer face any significant costs in switching suppliers?			
Does the buyer need a lot of important information with regard to using the product?			
Is the buyer aware of the need for additional information?			
Is there anything that prevents the customers from manufacturing the product/service in-house?			
Are customers highly sensitive to price?			
Are products unique to some degree? Do they have accepted branding?			
Do firms provide incentives to decision-makers on the buyer side?			

?

?

Bargaining Power of Suppliers

Question	Yes (Low Threat)	No (High Threat)	Cannot Assess
Inputs (material, labor, services) in this industry are standard rather than differentiated.			
Firms can switch between suppliers quickly and easily.			
Suppliers would find it difficult to enter this business.			
There are many current and potential suppliers in this industry.			
This business is important to the suppliers.			

Threat of New Entrants

Question	Yes(Low Threat)	No (High Threat)	Cannot Assess
Do existing firms have cost and/or performance advantage in this industry?			
Are there proprietary products/services on offer in this industry?			
Are there established brand identities in this industry?			
Do customers incur significant costs in switching suppliers?			
Is a lot of capital needed to enter this industry?			
Does a new comer to the industry face difficulty in assessing distribution channels?			
Does experience in this industry help firms to continually lower costs and/or improve performance? In other words, is there a "learning effect" in this industry?			
Are there any licenses, insurance and other qualifications required in this industry that are difficult to obtain?			
Can a new comer entering this industry expect strong retaliation from the existing players?			

Threat of Substitutes-

Question	Yes (Low threat)	No (High threat)	Cannot assess
Available substitutes have performance limitations and/or high prices that do not justify their use as mainline products.			
Customers will incur costs in switching to substitutes.			
There truly are no real substitutes for the products available in this industry.			
Customers are not likely to go for substitutes.			

Rivalry among Existing Players

Question	Yes (Lowers rivalry)	No (Intensifies rivalry)	Cannot assess
The industry is growing rapidly.			
The industry does not have overcapacity at the moment.			
The fixed costs of the business are a relatively low proportion of the total costs.			
There are significant product differences and brand identities among the competitors.			
It would not be hard to get out of this business because there are no long-term commitments that bind players to the industry.			
Customers would incur high costs if the switched from one player to another.			
Products on offer are highly complex and require significant customer-producer interaction.			
Market shares in the industry are more-or-less equally distributed among competitors.			