Chapter 5  Airline Operating Costs and Measures of Productivity

**Learning Objectives:**

The student will know the following terminology:

- **Airline Cost Categorization**
  - Form 41 contains traffic, financial, and operating cost data reported to the DOT by US Major airlines
  - Administrative Cost Categories
    - Salaries and related fringe benefits for all personnel (general management, flight personnel, maintenance labor, other personnel)
    - Materials Purchased (fuel & oil, parts, passenger food, other materials)
    - Services Purchased (advertising & promotions, communications, insurance, maintenance, commissions, other services)
    - Landing Fees, Rentals, Depreciation, other Expenses
  - Functional Cost Categories – allocates costs to the different functions within the airline’s operation
    - Flight operating costs/ Direct operating costs
      - Flying operations – Flight crew, Fuel costs
      - Maintenance – routine maintenance, extensive major checks, “labor & parts”
      - Form 41 reports maintenance for direct airframe, direct engine and overhead/burden
      - Depreciation & Amortization
    - Ground operating costs
      - Aircraft servicing – handling aircraft on ground, landing fees
      - Traffic servicing – processing passengers, baggage and cargo at airports
      - Promotion and sales – airline reservation centers, ticketing offices, travel agency commissions, and distribution system fees
    - System operating costs
      - Passenger Service – meals, flight attendants, in-flight services
      - Advertising and Publicity
      - General and Administrative – can’t be associated to a particular activity
      - Transport-related – costs associated with the generation of transport related revenues. Fees paid to regional airline partners, extra baggage expense, and other misc overhead
  - Operating Expense Comparisons
    - Typical breakdown of FOC for US carrier:
      - CREW: Pilot wages and benefits
      - FUEL: Easiest to allocate and most clearly variable cost
      - MAINTENANCE: Direct airframe and engine maintenance cost, plus “burden” or overhead (hangars and spare parts inventory)
      - OWNERSHIP: Depreciation, leasing costs and insurance
    - Network Legacy Carriers (NLCs)
• More Traditional Airlines
  ▪ Operate large hub-and-spoke networks
  ▪ Regional, Domestic and International Service
  ▪ Big Six (American, United, Delta, Northwest, Continental, US Airways/ America West)

  o Low-Cost Carriers (LCCs)
    ▪ Operate smaller networks
    ▪ High proportion of point-to-point or non-hub
    ▪ Reduced levels of service and low fares
    ▪ Southwest, AirTran, Frontier, ATA, JetBlue, Spirit

  o Characteristics of all or at least most LCCs
    ▪ Fleet Commonality – reduces the costs of spare parts, maintenance and crew training
    ▪ Point-to-Point instead of connecting hub networks – reduces costs of handling connecting passengers and improves productivity of both aircraft and crews
    ▪ No labor unions and lower wages – higher productivity due to less restrictive work rules
    ▪ Single cabin/class service – reduces complexity and costs
    ▪ Open seating – less time processing passengers and no boarding passes, improves productivity and reduces costs
    ▪ Reduced Frills – less seating space, no food and no beverages, increases ASM and reduces passenger service cost
    ▪ No frequent-flyer programs – reduces administrative costs
    ▪ Avoids traditional distribution channels – no travel agencies, no commissions, tickets directly from airline (website or phone)

• Comparison of Airline Unit Costs
  o Legacy vs. Low-Cost Airlines Unit Costs
    ▪ Fuel expenses are compared under assumptions all airlines are subject to the same fuel price environment (They are not)
    ▪ Fuel price hedging
    ▪ Both NLC and LCC experienced a drop in unit costs after 2001 and a rise in unit costs after 2004
    ▪ NLC’s drop reflects cost-cutting strategies put in place after 9/11 (employee layoffs and passenger service cutbacks)
    ▪ NLC’s rise in costs primarily due to fuel prices
    ▪ LCC’s rise in costs tempered by their capacity growth during the same period

• Measures of Airline Productivity
  o Aircraft Productivity
    ▪ Measured in ASMs generated per aircraft per day:
      \[= (\text{# departures}) \times (\text{average stage length}) \times (\text{# seats})\]
    ▪ Aircraft “utilization” measured in block-hours/day:
      ▪ Block hours begin at door close (blocks away from wheels) to door open (blocks under wheels)
      ▪ Gate-to-gate time, including ground taxi times
    ▪ Increased aircraft productivity achieved with:
- More flight departures per day, either through shorter turnaround (ground) times or off-peak departure times
- Longer stage lengths (average stage length is positively correlated with increased aircraft utilization = block hours per day)
- More seats in same aircraft type (no first class seating and/or tighter “seat pitch”)

**o Labor Productivity**
- Measured in ASMs per employee per period
- As with aircraft, employee productivity should be higher with:
  - Longer stage lengths (amount of aircraft and traffic servicing for each flight departure not proportional to stage length)
  - Larger aircraft sizes (economies of scale in labor required per seat for each flight departure)
  - Increased aircraft productivity due to shorter turnaround times (more ASMs generated by aircraft contribute to positive employee productivity measures)
- Yet, network airlines with long stage lengths and large aircraft have lower employee productivity rates

**o Airline Productivity Measures**
- **Aircraft Productivity**
  - Aircraft Utilization (block-hours per day)
  - ASMs per Aircraft per Day
  - Average Stage Length
  - Number of Departures per Day
  - Aircraft Capacity (seats per aircraft)
- **Employee Productivity**
  - ASMs per Employee
  - ASMs per Labor Dollar
  - Revenue per Employee,
  - Revenue per Labor Dollar

The student will be able to perform the following analysis (i.e. problems):

- Able to calculate:
  - Flight operating costs Per Block Hour
  - Aircraft Servicing Costs Per Aircraft Departure
  - Traffic Servicing Costs Per Enplaned Passenger
  - Passenger Servicing Costs Per RPM
  - Able to calculate Airline Productivity Measures
    - **Aircraft Productivity**
      - Aircraft Utilization (block-hours per day)
      - ASMs per Aircraft per Day
      - Average Stage Length
      - Number of Departures per Day
      - Aircraft Capacity (seats per aircraft)
    - **Employee Productivity**
• ASMs per Employee
• ASMs per Labor Dollar
• Revenue per Employee,
• Revenue per Labor Dollar
• Discuss Legacy (NLC) versus Low Cost Carrier (LCC)
  o Operational Strategies and how they affect unit cost
  o Characteristics and how they affect unit cost