TURKISH AVIATION ACADEMY

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Airport Economics and User Charges

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Airport Economics and User Charges

- Objective:
  - Review: airport economic regulation; revenues and expenses; and international practices in determining user charges
- Topics:
  - Views on economic regulation of airports
  - General principles in setting airport charges
  - Review of aeronautical and non-aeronautical charges
  - Comparing airport charges

Economic Regulation of Airports

- There is considerable debate on how much economic regulation should be applied to airports
- Airports owned and operated by government are not regulated
- The strictness of regulation applied to privatized or semi-privatized airport operators and even to government-owned, but corporatized airport authorities varies greatly from country to country
- Some airlines support strict economic regulation of airports and the single-till system for determining user charges

Is there competition among airports?

- Airports do compete for connecting/transfer passengers
- This is especially true in the case of airports in close geographic proximity (e.g., LHR, CDG, FRA, and AMS)

- But, airports are natural monopolies for origin-destination passengers
- London is the most important example of truly competing airports serving the same metropolitan area (LHR, LGW, STN, LTN, LCY)

Setting Airport Charges

- Process and decision-maker(s) in setting user charges vary greatly
  - Central government (possibly with input from airport operator and airlines)
  - Regulator (with input from stakeholders)
  - Airport operator (with input from local airline committee, subject to approval by government or regulator)
  - Airport operator subject to approval by airline users (“majority-in-interest”)
- Typically subject to “liberal” or restrictive guidelines

Background on User Charges

- Controversial issues, with varying practices around the world; little guidance available; occasional government intervention
- Chicago Convention (1944), Article 15, Chapter 2:
  - uniform conditions for aircraft of all Contracting States
  - non-discriminatory charges for international air services
  - publish charges and communicate them through ICAO
- Bermuda 2 Agreement (UK/US, 1977):
  - user charges may reflect, but shall not exceed, full costs, including fair return on assets after depreciation

ICAO Doc. 9082/6 (2009) Policies on Charges for Airports and En Route Navigation

ICAO Doc. 7100 (annual) Manual of Airport and Air Navigation Charges

Statements by ICAO Council: Airport Charges

- Cost Basis for Airport Charges
  - International users must bear their full share (but not more) of the cost of the airport
  - Airports should maintain full financial records
  - Full cost includes operating cost of airport and essential services, as well as interest, depreciation, repairs and management
  - No charges for facilities not used
  - Airports may produce revenues greater than costs under the right circumstances
  - A user's ability to pay should not be taken into account until all costs are assessed

Definitions

- **Aeronautical charges** (revenues, costs): Charges for services or facilities directly related to the processing of aircraft and their passengers and cargo in connection with facilitating travel.

- **Non-aeronautical charges** (revenues, costs): Charges related to the ancillary (=not directly related to travel) commercial services, facilities and amenities available at an airport.

- **Off-airport revenues and costs**: Associated with activities which are unrelated to the services provided at the airport. [Examples include revenues from real estate ventures, consulting, investments at other airports, etc.]

Desirable Attributes of System of User Charges

- **Transparent**
  - Easy to understand
  - Well documented and supported
  - Legally defensible (consistent with national and international statutes and practices)
- **Achieve adequate cost recovery**
  - Meet financial objectives of operator including fair return on investment
- **Reasonable**
  - Not prohibitively high for users
  - Comparable with what similar airports charge

Desirable Attributes of System of User Charges [2]

- **Promote efficient use of airport capacity**
  - Reflect true costs of use of airport resources
  - Take account of congestion, if any, at peak hours
- **Flexible**
  - Can be easily modified in response to change
  - Subject to revision at relatively short intervals (e.g., one year)

Types of User Charges: Aeronautical

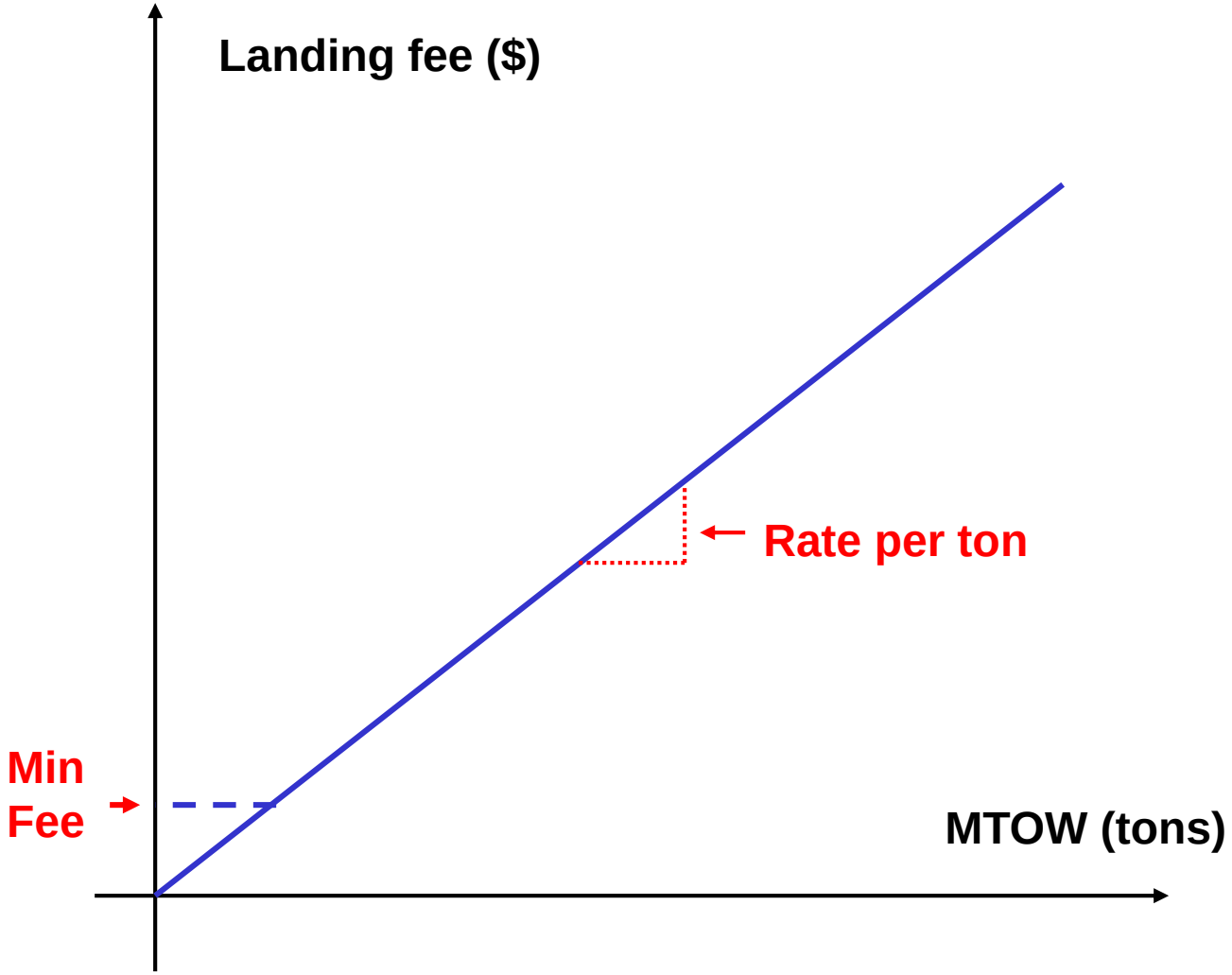
- Landing (and/or takeoff)
- Terminal-area air navigation
- Passenger service (terminals)
- Cargo service
- Aircraft parking and hangars
- Security
- Airport noise
- Noxious emissions (air pollution)
- Ground (ramp and traffic) handling
- En route air navigation

Landing Fee

- ICAO Council Statements:
  - Should be based on maximum permissible takeoff weight (MTOW), except under airport limitations
  - Should be computed on basis of a rate per 1000 kg; rate may vary at certain weights
  - May be just a fixed charge up to a weight threshold
  - Should include cost of lights and other landing aids -- these should not be optional
  - Should not depend on stage length

Note: Ability-to-pay is the driving consideration; inefficient at congested airports

Typical Landing Fee Schedule



Computation of Landing Fee at a Major US Airport

	Item	Amount
A.	Capital cost of public part of airfield at beginning of FY	$354,339,888
B.	Depreciation of public aircraft facilities	$14,173,596
C.	Interest on public aircraft facilities	$15,308,339
D.	Depreciation of equipment	$457,413
E.	Interest on equipment	$330,168
F.	Snow removal services	$2,540,000
G.	Maintenance and operations	$28,228,906
H.	Administration	$16,670,916
I.	Allocated portion of estimated tax liability	$3,578,719
J.	Prior year adjustment to projection	($4,545,064)
K.	Annual cost of airfield facilities in FY (= B through J)	$76,742,993
L.	Projection of scheduled air carrier landed weight (000 lbs.)	21,200,000
M.	Landing fee per 1,000 lbs of landed weight for FY (= K / L)	$ 3.62

More "Innovative" Landing Fees: Athens

- For aircraft with MTOW ≤ 120 tons (Note: 757-200: MTOW = 116 tons):

Landing fee = (unit rate per ton) x (MTOW)

- For aircraft with MTOW > 120 tons:

Landing fee = (unit rate) x (MTOW) x $(120 / MTOW)^{0.4}$

- 2011:

Unit rate = € 8.21 per ton

737-400 (68 tons) pays: € 558

A340-600 (365 tons) pays: € 1920

Ratio of fees = 3.44 Ratio of weights = 5.37

Airport Charges, London Heathrow (2015)

- Landing fee for Chapter 3 and 4 aircraft: £ 2,934 and £ 1,430, respectively, irrespective of weight. [*Note:* The fee is closely tied to “noise”; further adjustments are made for noise characteristics and for late night (00:30-03:30) operations.]
- Air navigation service fee: £ 80.53 + 1.08 per metric tonne of MTOW.
- Charge per departing passenger: £ 29.59 for European destinations; £ 41.54 for others.
- Aircraft Parking charge: Triple charge for parking between 06:00 and 11:30 in Summer season.

Other Aeronautical Charges

- Terminal Air Navigation -- Sometimes charged separately; allocated between airport operator and ATM service provider
- Passenger Service -- Charged on a per passenger basis; usually paid directly by airline, but with notable exceptions; "head taxes" (e.g., PFC in US) are often a form of passenger service fee
- Cargo Service -- Per ton or other unit measure
- Parking and Hangar Charges -- Based on MTOW and/or aircraft dimensions; often no charge for occupancies of less than "normal threshold" (2-6 hours); rate may differ for contact vs. remote

Noise-Related Charges

Increasingly common; often part of landing fee

Often depend on time of day and/or aircraft noise characteristics

Stage 3 and 4 aircraft are increasingly being broken up into finer subdivisions, as Stages 1 and 2 disappear

Cover noise mitigation costs + instruments for demand management

ICAO Statements:

- "should be imposed only where noise problems exist";
- "should recover only costs of noise alleviation";
- "should not be prohibitively high for the operation of some aircraft"

Note: Some airports (Stockholm, Zurich, Geneva) have introduced noxious emissions charges

Security Charges

- Varying practices
- National police or other government security agency; airport operator; third-party contractor
- Supervision is state responsibility
- Users requesting or requiring additional security may be charged more
- Often part of passenger service charge
- ICAO Statements: authorities may recover costs but no more

Ground Handling

- Provision of ground-handling services is an essential aspect of airport operations
- Large workforces
- Ground handling can be provided by:
  - The airport operator (or government agency)
  - The airline itself (“self-handling”)
  - Another airline
  - A specialized ground-service operator
- Airlines insist on at least two of the above options being available and on the right to self-service
- Some airport operators still retain monopolistic or semi-monopolistic control of all/some services
- Frequent cause of disputes or litigation

Aeronautical charges and taxes per departing passenger on a B737-400* (Athens, 2011)

Landing charge (pro-rated per departing pax)	€ 5.08
Parking charge (pro-rated per departing pax)	€ 1.31
Passenger terminal facilities charge	€ 12.16
Security charge	€ 5.00
Loading bridge charge (pro-rated per departing pax)	€ 1.41
Ground power charge (pro-rated per departing pax)	€ 0.33
Baggage handling system charge	€ 1.92
CUTE system charge	€ 0.32
Check-in desk charge	€ 0.20
Airport development fund (ADF) charge**	€ 12 / 22
Total***	€ 39.73 / € 49.73

* 110 passengers (75% load factor), 60-min stay, contact gate at MTB
**ADF is 12 euros per EU departing passenger and 22 euros per non-EU
*** First total applies to EU passengers and second to non-EU

Landing fees: ATH vs. LHR (2011)

Aircraft type	MTOW (tons)	Landing charge ATH	Landing charge LHR*
Boeing 737-400	68	€ 558	€ 1,898
Airbus 340-600	365	€ 1,920	€ 1,898
Boeing 747-400	397	€ 2,020	€ 1,898

* Peak Periods, 2011

Landing Fees (10 Most Expensive Airports, 2008)

	United States	Europe	Asia / Pacific
A320-200	$676	$1183	$950
B767-200	$1900	$2850	$2420

Source: ATRS (2009)

Landing Fees* ($) at Major World Airports

Airport	B737-400	B777-300	A380
London LHR	2,288	2,288	2,288
Kansai	2,040	8,970	16,800
Hong Kong	674	2,547	4,668
Frankfurt	459	2,018	3,780
Beijing	458	2,248	4,652
Paris CDG	443	2,230	4,249
Sao Paulo	385	1,692	3,170
NY JFK	374	1,645	3,080
New Delhi**	328	1,771	3,461
Dubai	269	1,181	2,213

* US$, November 2013

** Much lower rates for domestic flights

Considerations When Comparing Airport Charges

- Direct or indirect government subsidies
  - direct grants; special- and general-fund taxes, etc.
- Coverage and quality of services offered
  - ATC services, comfort, delays, reliability, etc.
- Volume of traffic
  - some economies of scale (e.g., handling services)
  - reduced average costs when marginal costs are small
- Characteristics of traffic
  - domestic vs. international, originating vs. transfer, etc.
- General cost environment
  - labor cost + regulations, construction + technology costs
- Accounting practices
  - e.g., historical-cost vs. current-cost depreciation

Non-Aeronautical Charges

- Statements by the Council: "Should be developed to the maximum possible"
- Concession fees for aviation fuel and oil
  - Concessionaire or airport itself
  - Council: treat as non-discriminatory aeronautical charge
- Concession fees from commercial activities
  - Fixed amount or percentage of gross sales (10-60% with guaranteed minimum)
- Revenues from car parking and car rentals
  - Operator itself; third-party operator; BOT agreements
  - On-premises vs. off-premises car rental facilities
  - Fast growing!

Non-Aeronautical Charges [2]

- Rentals for airport land, space in buildings (including advertising space) and equipment
- Fees charged for tours, admissions, etc.
- Fees derived from provision of engineering services, utilities, etc., by airport operator
- Off-airport revenues
  - Consulting services
  - Education and training services
  - Management contracts at other airports
  - Management contracts for other activities
  - Equity investments in travel-related or other ventures
  - Equity investments in other airports

Aeronautical vs. Non-Aeronautical Revenues

- Non-aeronautical revenues are roughly equal, on average, with aeronautical revenues at major airports
- Non-aeronautical revenues: highest percent of total operating revenues in Asia/Pacific (~50%), somewhat lower in US and Europe
- These percentages vary widely, ranging from 75% to 25% across some 200 major airports around the world
- Airports well-known for very high non-aeronautical revenues include Hong Kong, Singapore, London Heathrow, Amsterdam, and Miami
- Concession revenues are most important outside US; car parking and rental revenues in the US

2013 Airport Industry Revenues and Costs

	Total Revenue	Aeronautical Revenue*	Non-Aeron'al Revenue**	% Aeron'al	Total Costs (Operating + Capital)
Africa	2.9	2.1	0.8	72%	2.1
Asia-Pacific	37.0	18.8	18.2	51%	25.8
Europe	49.8	30.1	19.7	60%	42.1
Latin America – Caribbean	7.0	4.4	2.6	63%	5.1
Middle East	8.7	4.4	4.3	51%	7.4
North America	25.5	13.9	11.6	55%	22.7
Total	130.9	73.7	57.2	56%	106.5

Amounts shown are in Billions of US$ (1900 airports, 150 countries)

* Includes ground-handling income

** Includes non-operating income

Source: *Airport World*, February – March 2015

Distribution of Non-Aeronautical Income (2013)

	Retail Concessions	Car Parking	Real Estate	Rental Cars	Food + Beverage	Advert'ng	Other
Africa	44	15	18	4	1	8	10
Asia-Pacific	33	8	23	1	3	4	28
Europe	35	15	19	2	5	2	28
Latin America -- Caribbean	25	9	14	3	6	5	38
Middle East	49	8	11	2	5	3	22
North America	8	39	13	17	7	6	10
Total	27	20	18	6	5	4	20

All figures shown in the Table are percentages (%)

Source: *Airport World,* February – March 2015

Specialized Retail Teams

- Contracts
- Data analysis
- Strict quality monitoring (1-5 scale)
- Market surveys and analyses
- Annual marketing plan
- Monitor passenger flows and queues
- Space optimization
- Tenders/negotiations
- Identification of new opportunities
- Risk assessment

Athens: More Access to Concession Areas

Target Groups:

- **Passengers (70%)**
- **Non-passengers (30%)**

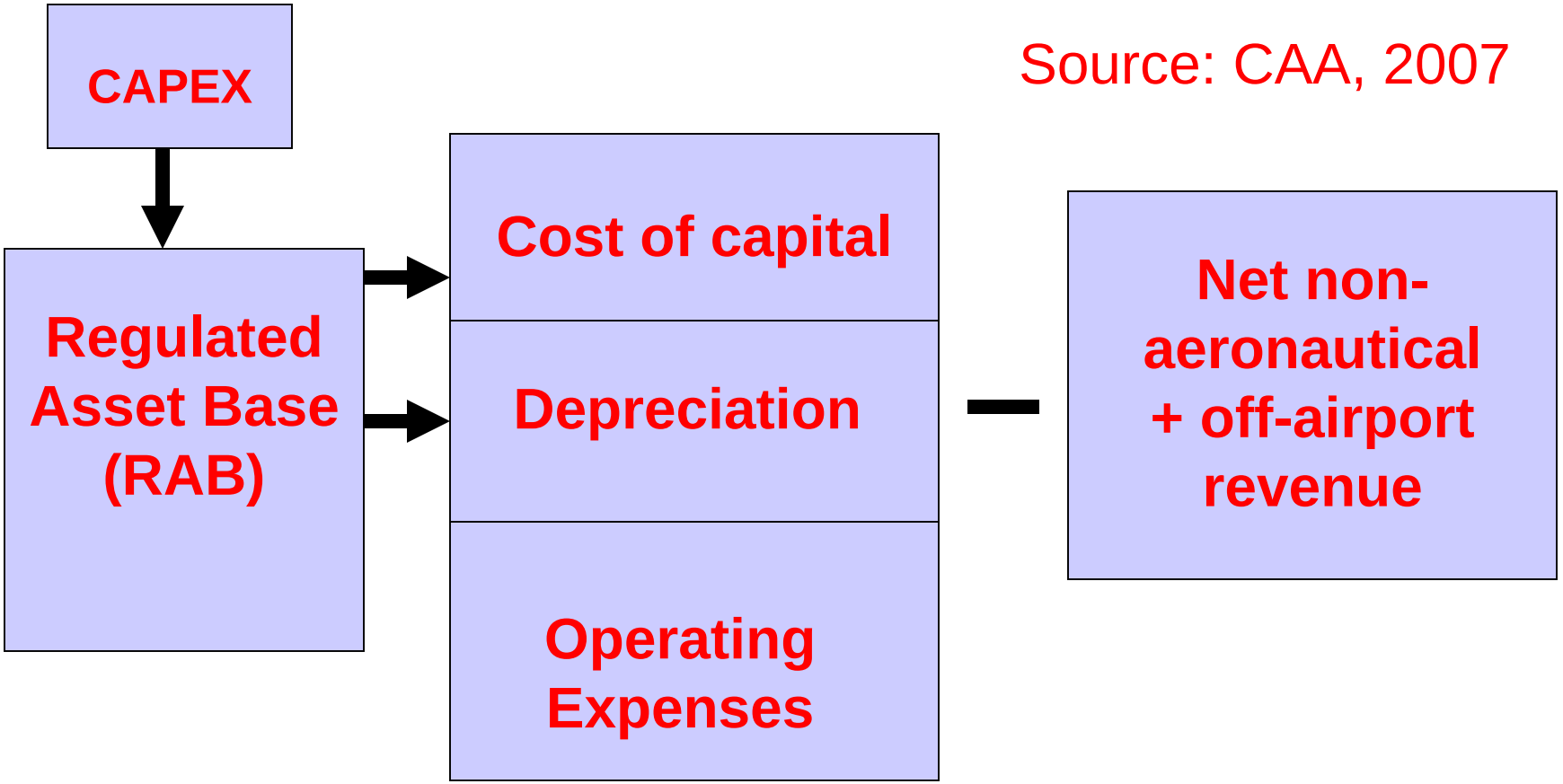
  Airport employees; Meeters; Greeters; Visitors; Business partners and visitors

Single-till vs dual-till pricing of aeronautical services

- A fundamental issue: how to treat non-aeronautical revenues
- "Single till" vs. "dual till" controversy (simplified)
- Single till: Airlines are charged only for "residual" aeronautical costs, i.e., those not covered by non-aeronautical revenues [supported by airlines]
- Dual till: Airlines pay aeronautical charges sufficient to cover the full cost of aeronautical facilities and services; non-aeronautical revenues are not considered [supported by airports]

The Single-Till Approach

Source: CAA, 2007



= Regulated Revenue Target

Revenue Yield Per Passenger

US Analogy: Residual vs. Compensatory

- Residual Cost Approach
  - Airlines assume financial risk by agreeing to pay costs not allocated to other users or not covered by non-airline sources of revenue
  - Airlines are charged only for residual aeronautical costs, i.e., those not covered by non-aeronautical revenues
- Compensatory Approach
  - Airport operator assumes entire financial risk
  - Airlines pay aeronautical charges sufficient to recover actual aeronautical costs

Airline Priorities re Airport User Charges

- Transparency of costs
- Clearly articulated methodology for computing charges and financial strategy
- Fees that cover costs but leave little profit
- (Some) control over airport costs
  - Operating costs
  - Investments in capital projects – most important (these are the largest cost items for an airport and also imply new operating costs)
- Benefit from commercial activities and non-aeronautical revenues through lower airport user charges [single-till]

Airport Priorities re Airport User Charges

- Right to impose charges, with limited regulatory constraints
- Earn return on their investment
- Coverage of all airport costs
- Right to decide capital projects without undue interference by current airline users
- Even publicly-owned airport organizations seek return on capital profit to generate equity capital fund future projects
- Flexibility to offer incentives for new services
- Obtain full benefits of commercial activities and non-aeronautical revenues

Air Navigation Charges: Statements by the Council

- Costs to be taken into account should include only those related to services and facilities under ICAO Regional Air Navigation Plan
- Approach and Airport Control Charges
  - should be associated with landing fee
  - may take aircraft weight into account, but "less than in direct proportion"
- Route Air Navigation Charges
  - should take into account distance flown, and aircraft weight (in less than direct proportion)
- Charges for Services Outside Provider's Airspace
  - a State may charge for services rendered anywhere
  - collection of charges in such cases may be difficult

EUROCONTROL: Air Navigation Facility Charges

- The EUROCONTROL Formula:

Charge = (service unit rate) x (# service units)

service units = (distance factor) x (weight factor)

weight factor = $(MTOW/50)^{1/2}$

(MTOW in units of metric tons)

distance factor = Great-circle distance (in 100s of km)

(Great-circle distance is reduced by 20 km for each takeoff or landing within a concerned state)

EUROCONTROL Example

- 300 km flown by 200 ton aircraft in a country with a fee of $50 per “unit”:

$$\#\ \text{of units} = \frac{300}{100} \cdot \sqrt{\frac{200}{50}} = 6$$

- Charge = 6 x $50 = $300

"Corporatization" of Air Traffic Control Services

- "Corporatization" (or "commercialization"): placing of a government service into a corporate structure that operates along private sector lines.
- Switzerland (1991); Germany (1992); Netherlands (1993); Ireland (1994); Australia and South Africa (1995); UK, Czech Republic, Canada (1996); Latvia (1997)…..
- NAV Canada (1996) is first privately-owned ATM corporation; owned by stakeholders (airlines, g.a., unions); surplus revenues retained by NAV Canada to finance investments
- NATS UK (2001) operates along similar lines with NAV Canada; 49% government ownership
- Single European Sky Agreement (2004): choice of ATC service provider; can consolidate providers

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Questions? Comments?