

Slot Reform - Rent Seeking of Airlines, Airports and Politicians

Kenneth Button

*Center for Transportation Policy,
Operations and Logistics*

George Mason University

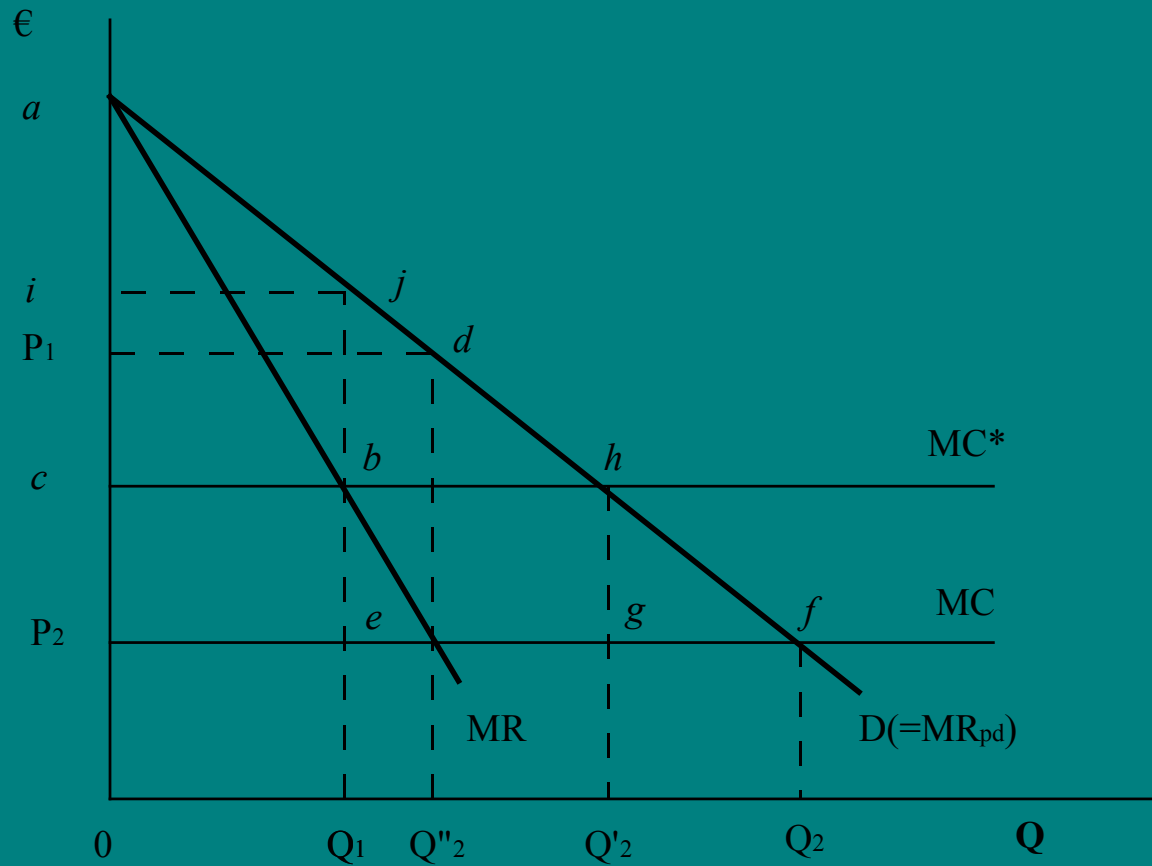
Issues

- What is rent seeking?
- What are the pros and cons of rent seeking?
- What determines the aggregate amount of rent associated with a slot?
- How is this rent shared between players
- Where do policy makers fit into the equation?

Simple model

- One airport and many airlines
- Constant costs of supplying slot
- No automatic capacity constraint
- Linear demand function
- Rent seeking objectives

Basic model



Distributions of economic rents

- Competitive airlines/competitive airport.
 - Airlines \mathbf{afP}_2 Airport **Zero** Welfare loss **Zero**
- Monopoly airline/competitive airport.
 - Airlines \mathbf{afP}_2 Airport **Zero** Welfare loss **Zero**
- Competitive airlines/single pricing natural monopolist airport.
 - Airlines $\mathbf{aP}_1\mathbf{d}$ Airport $\mathbf{P}_1\mathbf{deP}_2$ Welfare loss **dfe**
- Competitive airlines/single pricing institutionalized monopoly airport.
 - Airlines $\mathbf{aP}_1\mathbf{d}$ Airport **Zero** Welfare loss $\mathbf{P}_1\mathbf{dfP}_2$
- Competitive airlines/perfect price discriminating natural monopoly airport.
 - Airlines **Zero** Airport \mathbf{afP}_2 Welfare loss **Zero**
- Competitive airlines/single natural monopoly airport with X-inefficiency.
 - Airlines \mathbf{aij} Airport \mathbf{ijbc} Welfare loss \mathbf{cbjfp}_2
- Competitive airlines/perfect price discriminating natural monopoly airport with X-inefficiency.
 - Airlines **Zero** Airport \mathbf{ahc} Welfare loss \mathbf{chfP}_2

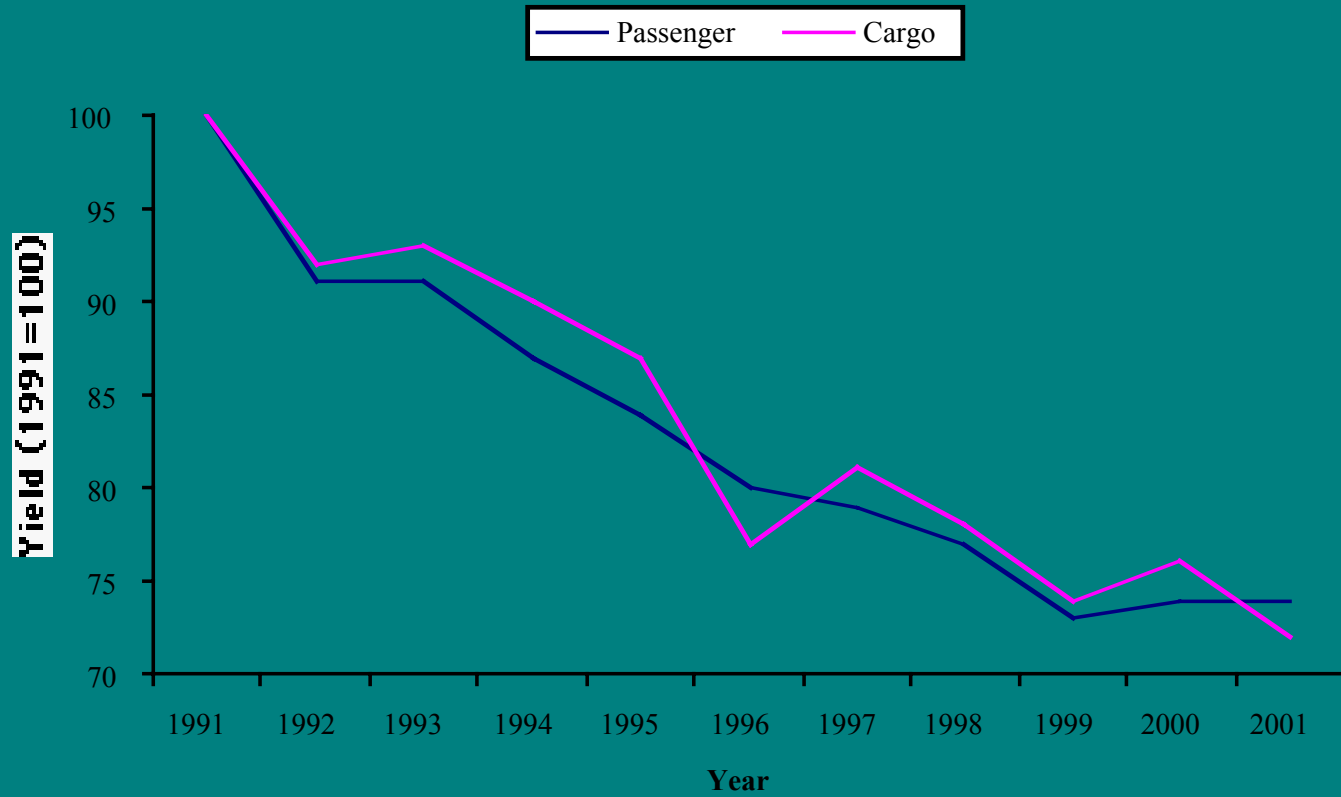
Some complexities

- Decreasing costs
- Managerial objectives
- Taxation

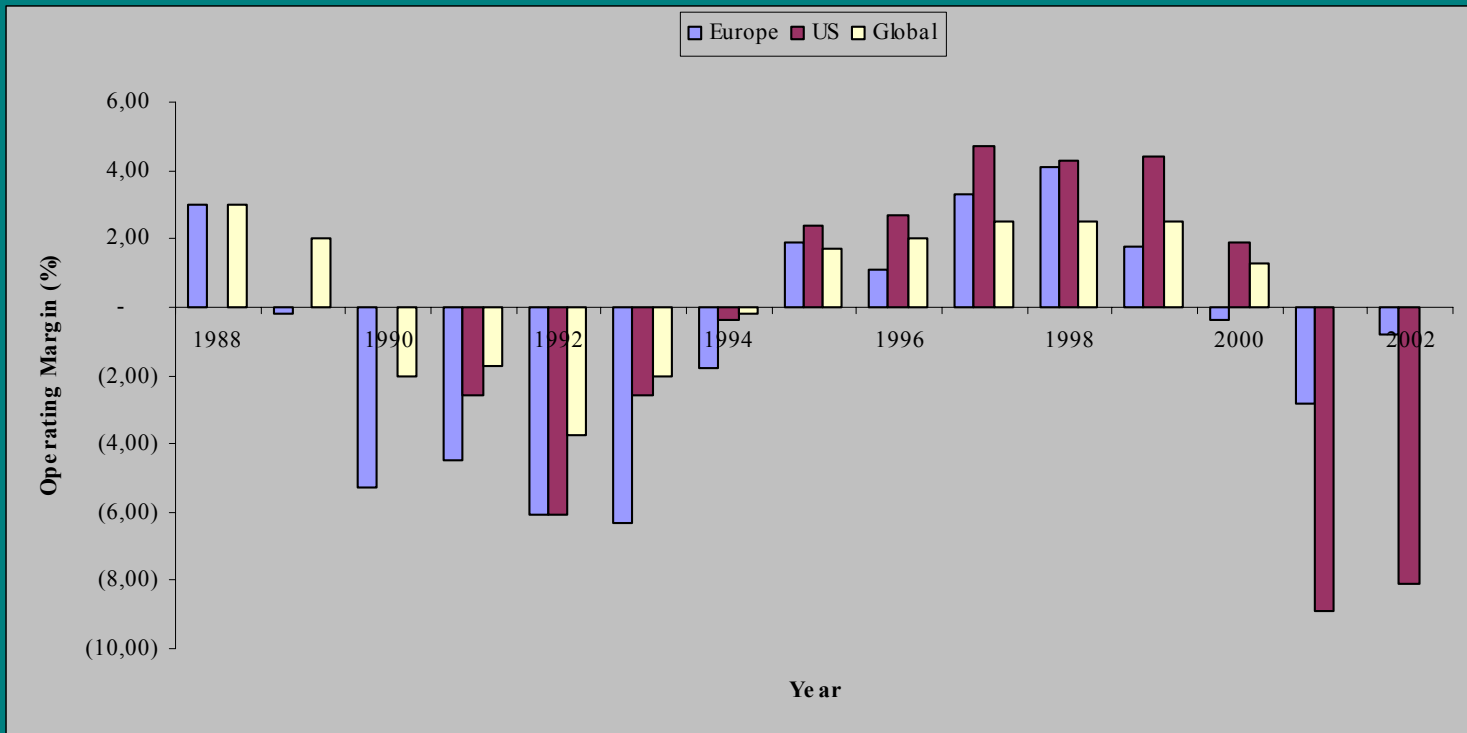
Methods of full cost recovery

- *Direct subsidies.*
- *Natural market power.*
- *Institutional market power.*
- *Internal coalitions.*
- *Internal cross-subsidization.*
- *Long term contracts between supplier and customer.*
- *Unbundling of services.*
- *Two-part tariffs.*
- *Vertical integration.*
- *Discriminate pricing.*

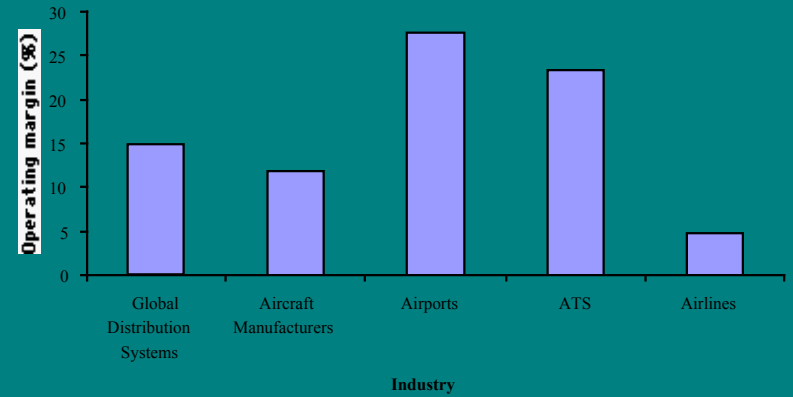
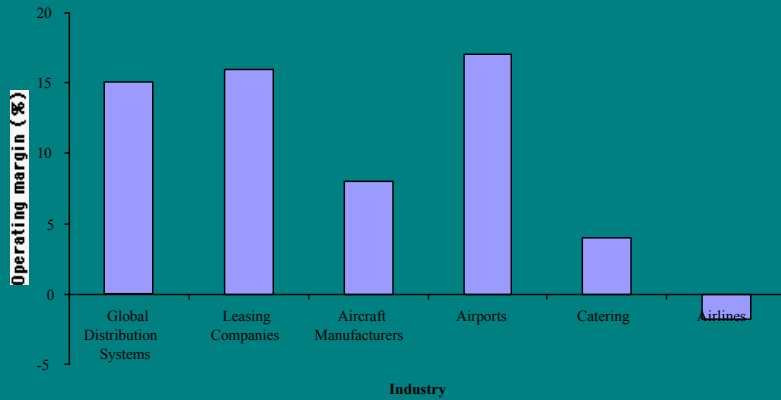
Passenger and cargo yield for EU scheduled airlines



Operating margins of airlines



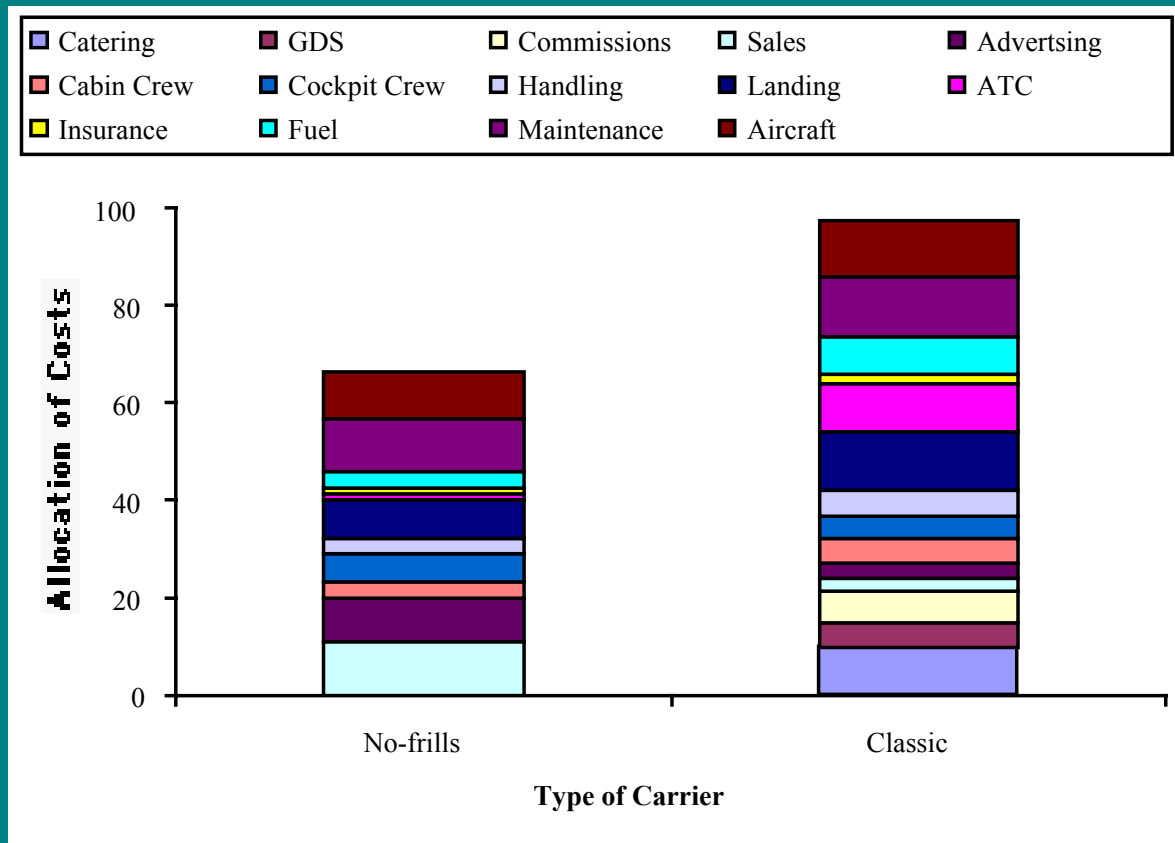
Returns in the value chain



Flights by the three lead carriers at US and European Airport

Airport	Carrier 1	Carrier 2	Carrier 3
Top 10 US airports ranked by passengers			
Atlanta	Delta Air Lines 73.7%	AirTan Airways 14.6%	American Airlines 2.3%
Chicago	United Airlines 47.0%	American Airlines 38.6%	Delta Air Lines 2.2%
Los Angeles	United Airlines 30.8%	American Airlines 19.0%	Southwest Airlines 13.8%
Dallas/Fort Worth	American Airlines 63.3%	Delta Air Lines 25.7%	United Airlines 1.6%
Dever	United Airlines 53.3%	Frontier Airlines 15.1%	Great Lakes Aviation 12.2%
Phoenix	America West Airlines 51.1%	Southwest Airlines 27.27%	United Airlines 3.6%
Las Vegas	Southwest Airlines 27.7%	America West Airlines 27.7%	United Airlines 8.7%
Houston	Continental Airlines 82.7%	American Airlines 3.4%	Delta Air Lines 3.0%
Minneapolis	Northwest Airlines 80.3%	American Airlines 3.6%	Delta Air Lines 2.9%
Detroit	Northwest Airlines 79.4%	American Airlines 3.8%	Delta Air Lines 2.8%
Top 10 European airports ranked by passengers			
London Heathrow (3)	British Airways 41.6%	bmi 12.1%	Lufthansa 4.4%
Frankfurt (7)	Lufthansa 59.4%	British Airways 3.6%	Austrian 2.9%
Paris Charles de Gaulle (8)	Air France 56.6%	British Airways 5.1%	Lufthansa 4.9%
Amsterdam (9)	KLM 52.2%	Transavia 5.5%	easyJet 4.5%
Madrid (14)	Iberia 57.0%	Spanair 12.7%	Air Europa 7.1%
London Gatwick (21)	British Airways 55.1%	eastJet 12.8%	flybe British European 5.1%
Rome (31)	Alitalia 46.2%	Air One 10.0%	Meridiana 3.3%
Munich (35)	Lufthansa 56.8%	Beutsche BA 6.6%	Air Dolomiti 6.5%
Paris Orly (36)	Air france 64.2%	Iberia 8.2%	Air ittoral 3.3%
Barcelona (38)	Ibera 48.55	Spanair 9.4%	Air Europa 5.1%

Cost structures of European low-cost carriers and traditional full-service carriers



Conclusions

- Effect of rent seeking depend on market structures
- Issues of allocative efficiency and X-efficiency
- Political motivations may not coincide with rent seeking
- The available data does not shed much light on the current distribution of rents