5. COMPETITION (1)

Readings for Lecture 5

- Nash, C., Crozet, Y., Nilsson, J. E., & Link, H. (2016). Liberalisation of passenger rail services. *CERRE Report*.

Learning Objectives

- High prevalence of imperfect market structures in transport markets
- The main sources of barriers to entry
- Competition for the market and competition on the market

5.1 Theory

Review of basic micro

1. What is a normal profit?
2. Does perfect competition exist in the real world?
3. What happens when markets do not have enough competition?
4. What are barriers to entry in the airline industry?
5. How is price established in an oligopoly market?

Perfect competition (assumptions)

- Many buyers and sellers
- No barriers to entry or exit
- All firms are profit maximisers
- All consumers are utility maximizers
- Perfect information
- Homogenous product
- No economies of scale
- Non rivarly in consumption
- Absense of externalities
- No governemnt intervention

Barriers to entry

- Firm size
- High sunk costs
- Product differentiation
- Legal protection
- Control of factors of production
- Exclusive dealership
- Branding

Barriers to entry (exercise)

For the following transport industries: a) Bus production b) Provision of rail services c) Provision of the rail infrastructure d) Road haulage e) Air services f) Parcels markets; identify the main barriers to entry into each of these markets for a potential market entrant under the headings of structural and strategic barriers. Then place these industries on a scale, where 1 represents the industry with the lowest barriers to entry and 6 the industry with the highest. What does this tell you?

Disadvantages of monopoly

- Production inefficiencies
- Higher prices charged and lower output produced
- Reduction of consumer surplus and is regressive
- Net welfare loss
- X-efficiency
- The market no longer regulates itself

Advantages of monopoly

- A higher level of expenditure on R a D
- Market size – a natural monopoly
- Wasteful competition
- Hotellings law

Contestable markets

Baumol (1982) – it is unneccessary for the market to be in perfect competition in order to produce economically efficient results. It is enough to be a contestable market.

Contestable market = entry to the market is free and exit is costless

Review question

Examine the extent to which you believe that the low cost airline market meets the conditions of the contestable market.

Case: Contestability in airlines

The sector is becoming more contestable because:

- Control over landing slots is lower
- The spread of information through Internet
- The frequent flyer initiative is on retreat
- The growth of LCA

Discussion question

Are railways contestable markets?

Why yes?

Why no?

Compare: Shires, J. D., Preston, J. M., Nash, C. A., & Wardman, M. (1994). Rail privatisation: the economic theory.

5.2 Competition on x for the market

Competition on x for the market

- **Competition on the market** = this occurs where there is no restriction on entry. Operators are competing directly against each other.

- **Competition for the market** = where entry to the network is restricted, it is possible to organize competition for the exclusive right to service individual routes

Competition on the market

- Direct impact on efficiency and costs
- Enterpreunership spirit and flexibility regarding entry and exit
- No arbitrary borders of franchises

Competition for the market

- Enables creation of long term contracts between operator and public authority, including investment liablities
- Contracts may include specification of services (frequency, quality, punctuality and so on)
- Competition for the market may be organized for wider regions and therefore it may internalize more network externalities than open access operators on single

European rail

Competition on the market:

- Praha – Ostrava; Praha – Brno
- Wien – Salzburg; Roma – Milano
- Stockholm - Goteborg

Competition for the market:

- British franchising
- Germany regional traffic
- Many others

See: Nash, C., Crozet, Y., Nilsson, J. E., & Link, H. (2016). Liberalisation of passenger rail services. *CERRE Report*.

British buses

- **Competition for the market** – London
- **Competition on the market** – rest of England

5.3 Case study

Nash, C., Crozet, Y., Nilsson, J. E., & Link, H. (2016). Liberalisation of passenger rail services. *CERRE Report*.

Introduction

Passenger rail services may be liberalised in two ways.

- The first is by means of **competitive tendering** for public service contracts. (*competition for the market*)
- The second is by **open access** for the operation of commercial services. (*competition on the market*)

Competition for the market

- **Britain** has adopted franchising by means of competitive tender for almost all passenger services, subsidised and commercial; state-owned British Rail was not allowed to bid and ceased to exist as a train operator.
- **Sweden** has adopted it for virtually all subsidised services; most are procured by the regions, and 45% of all services in Sweden are now operated by new entrants.
- In **Germany**, the federal states are responsible for procuring all subsidised services; there is a trend toward competitive tendering and 18% of regional services are operated by new entrants

Competition on the market

All three countries have at least some commercial open access operation, but the country that has taken this furthest is Italy, where a new entrant provides frequent services in competition with the state-owned operator on the high-speed network.

France – no competition

By contrast, France has no competitive tendering or open access competition (except on a couple of international routes).

Has passenger rail market liberalization been a success?

Existing evidence on:

- Growth of traffic
- Subsidies
- Costs

Trends in passenger rail traffic

	Passenger Rail km 1995-2013				
	1995	2005	2013	2013/ 2005	2013/ 1995
France	54.2	76	87.4	1.15	1.61
Germany	71	76.8	89	1.16	1.25
Sweden	6.8	8.9	11.9	1.34	1.75
UK	30.3	44.6	62	1.39	2.05

Traffic in France and Britain

Fig 1: Passenger rail traffic in France in million Pkm.

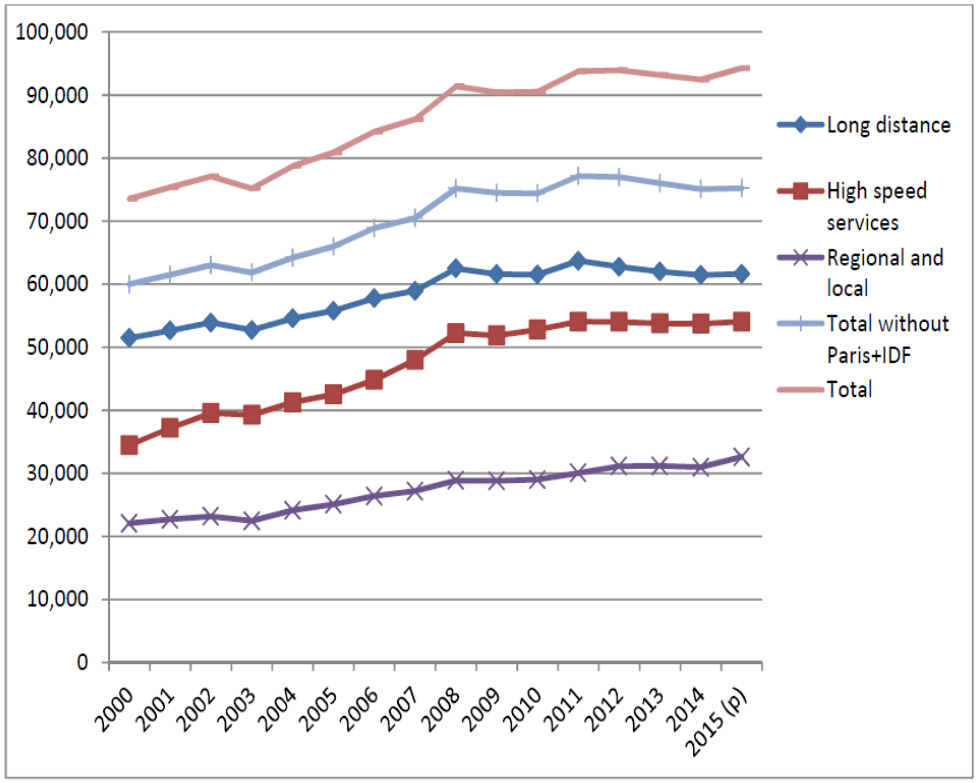
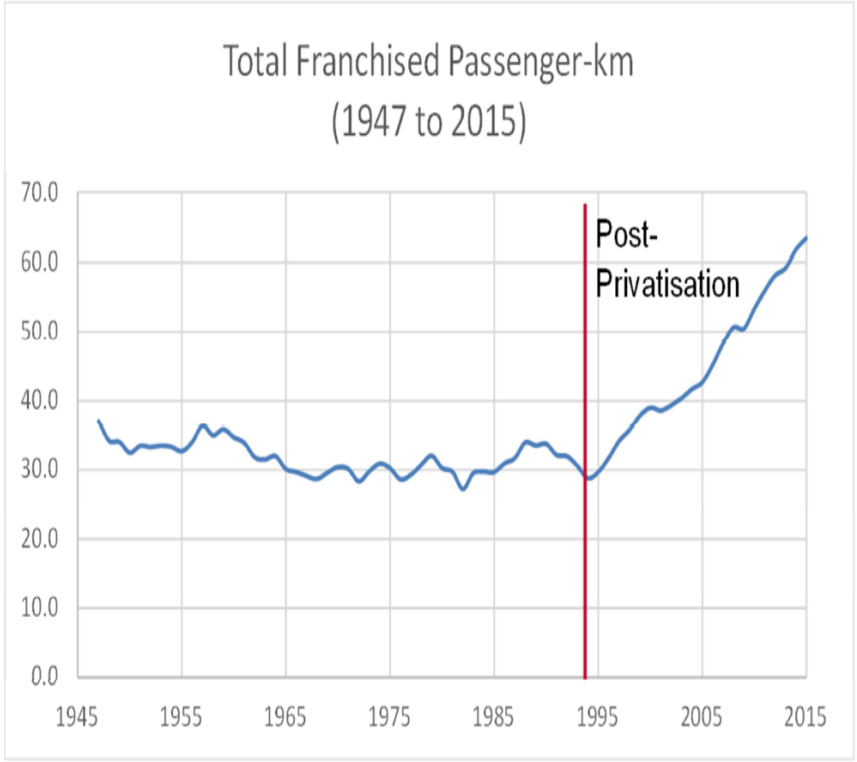
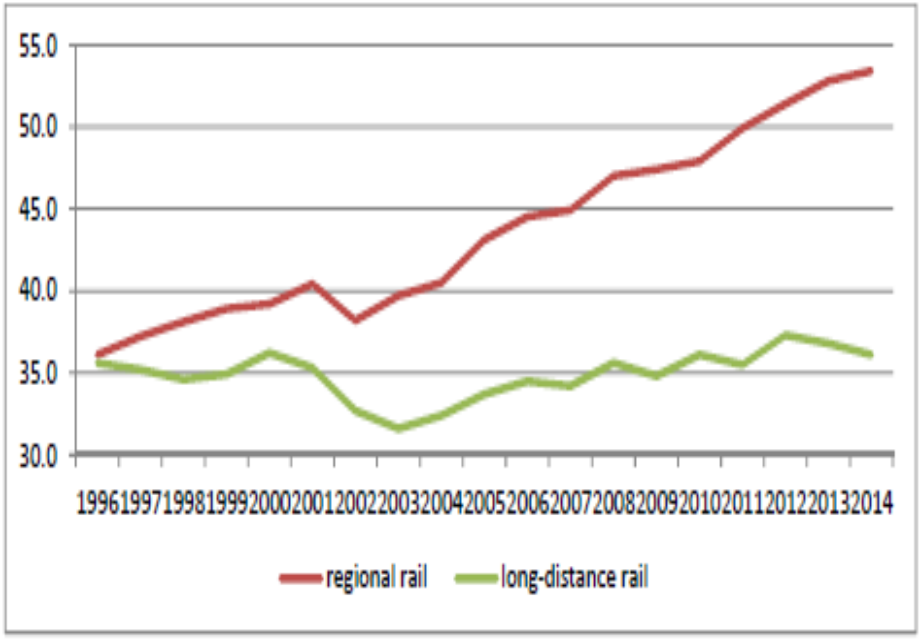


Fig 2: Passenger rail traffic in Britain 1947-2015



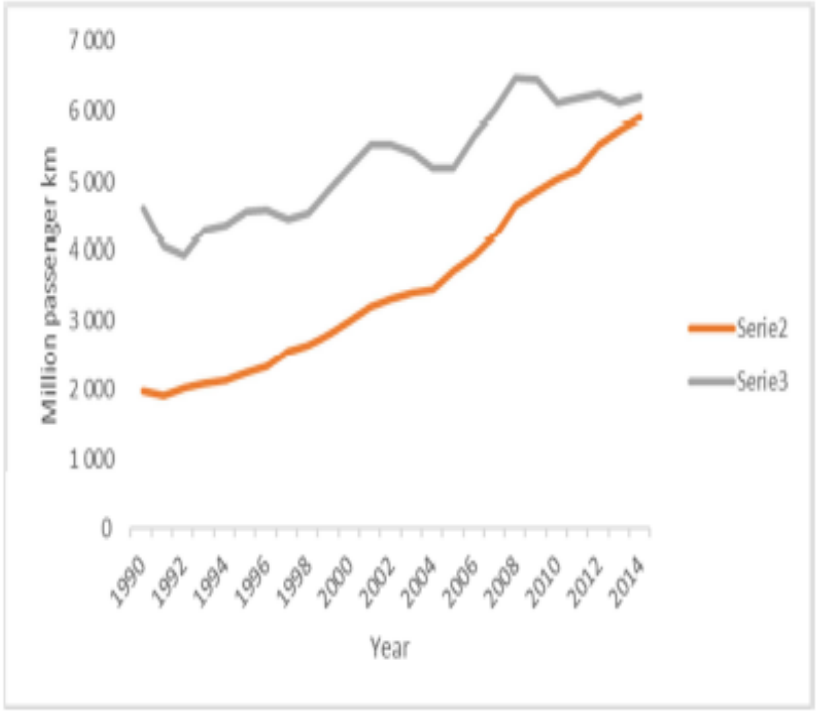
Traffic in Germany and Sweden

Fig 3: Transport performance in regional & long-distance passenger rail transport in Germany 1996-2014 (billion passenger-km)



Source: BMVI/DIW: Transport in figures, various volumes.

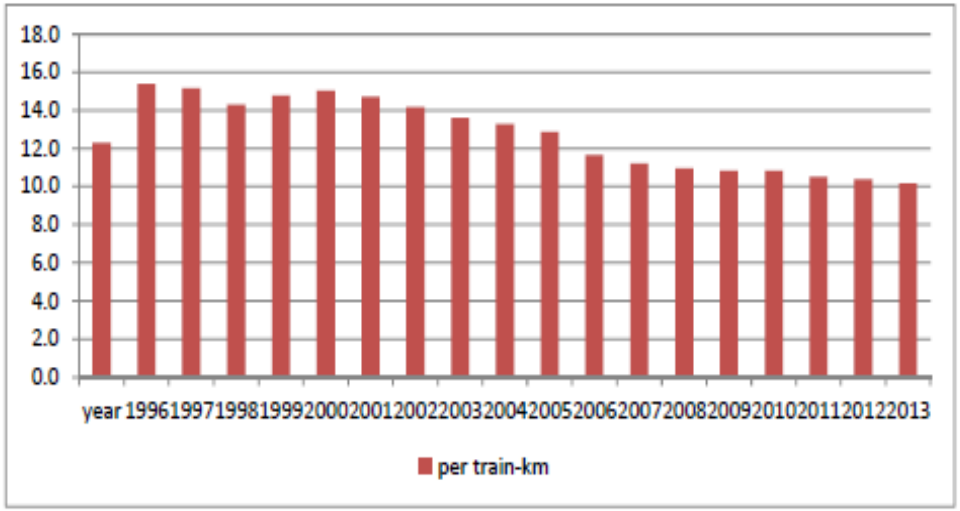
Fig 4: Growth of regional (Series 2) and commercial rail traffic in Sweden between 1990 and 2014

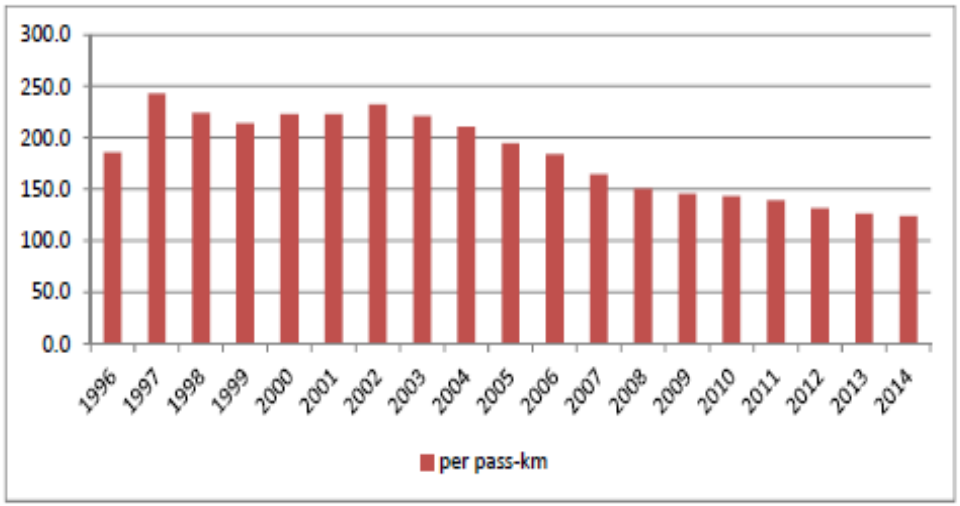


Source: Data available at www.trafa.se.

Subsidies in Germany and France

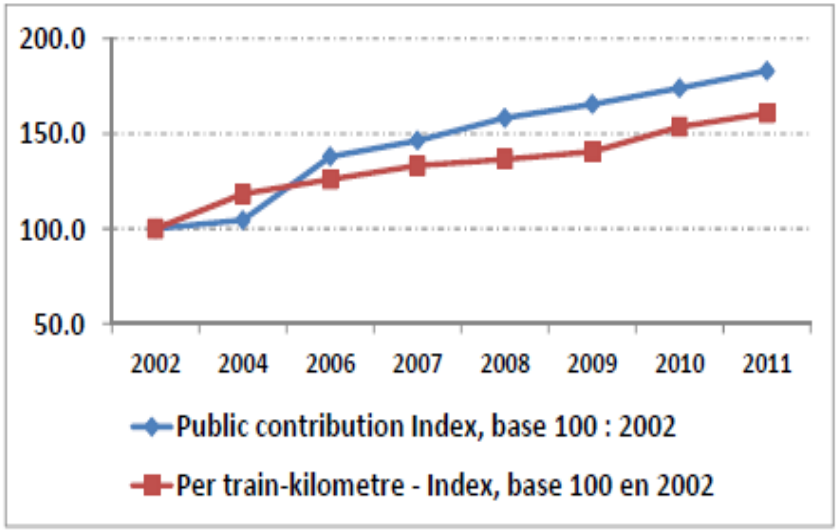
Fig 5: German regionalisation subsidies in Euro per transport unit at 2010 prices





Source: H Link own database

Fig 6: Public contribution to regional rail traffic in France



Source: Desmaris Ch. 2014, La régionalisation ferroviaire en Suisse : la performance sans la compétition, Revue Politiques et Management Public Revue 31/2 Avril-Juin 2014/pp. 169-191

Costs and subsidies in Britain

Table 6: Train Operating Company Real Unit Cost Changes (1998-2015) in Britain

	Per train-km	Per vehicle-km*
Staff	+44%	+34%
Rolling stock lease payments	-20%	-26%
Other	+46%	+35%
Total	+25%	+16%
(excluding payments to Network Rail)		

Source for cost data: ATOC (2013) and Great Britain Rail Industry Financial Information 2011-12 to 2014/15, Office of Rail and Road (ORR). Note: actual vehicle-km data were sourced from ORR and Network Rail for the years 1998 to 2010. From 2010 to 2015 vehicle-km are estimated on the assumption that average train length continues to increase at the same rate as over the 1998 to 2010 period.

Table 8: Government support for passenger rail services in Britain (excluding investment in enhancement)

£m, 2015 prices	Net payments to/from train operating companies	Support to Network Rail for Operations, Maintenance and Renewal*	Total Government Support (excluding enhancements)	Total support per train-km (£)
1996-97	3,447	0	3,447	9.05
1997-98	2,863	0	2,863	7.27
1998-99	2,396	0	2,396	5.79
1999-00	2,039	0	2,039	4.78
2000-01	1,686	0	1,686	4.05
2001-02	1,521	3,631	5,152	12.06
2002-03	1,767	4,490	6,256	14.39
2003-04	2,455	5,431	7,885	17.70
2004-05	1,706	4,494	6,200	13.96
2005-06	1,580	4,044	5,624	12.37
2006-07	2,213	3,151	5,364	11.79
2007-08	1,725	2,953	4,678	10.21
2008-09	669	4,084	4,753	10.14
2009-10	873	3,136	4,009	8.23
2010-11	167	2,626	2,793	5.64
2011-12	88	2,621	2,710	5.36
2012-13	-265	2,734	2,479	4.90
2013-14	143	3,341	3,485	6.88
2014-15	-679	3,320	2,641	5.15

* This is Network Rail Operations, maintenance and renewal costs less income from track access charges and property income. It is zero for the first few years as during this periods the infrastructure was run by a private company, Railtrack.

Source: ORR

Franchising - discussion

- What organization should be responsible for franchising?
- What is the optimal size and length of franchises?
- How to manage risk sharing?

Greater role for open access?

- In **Britain**, open access has to date been limited by a 'not primarily abstractive' test; only open access operations where revenue new to the rail industry is at least 30% of that abstracted from existing operators are permitted.
- **Germany** has had very little new entry in practice, perhaps because of the relatively high track access charges and strong competition from air and now intercity bus.
- Open access has only applied in **Sweden** for a short period of time, but already there is intense competition on one key intercity route, between Stockholm and Goteborg.
- For more experience of on-track competition, we have to look outside our case study countries, to **Italy, Austria and the Czech Republic**.

Conclusions

- In all three countries – Sweden, Germany and Britain - there has been rapid growth in demand for regional services, and subsidy per train km has generally fallen. By contrast in France, with no competition, it has risen substantially.
- Whilst in Germany and Sweden costs have been reduced, in Britain train operating costs have actually risen, although this has been more than offset by increased revenue.
- A factor in this is thought to be that in Britain the winner of a franchise takes over an existing company including its staff, wages and conditions. In Germany and Sweden, the winner is responsible for assembling its own staff.
- For a country such as France first introducing competitive tendering on a large scale, the issue of how to handle existing staff is the biggest barrier;

5.4 Summary

Summary (1)

- Contestable market = entry to the market is free and exit is costless
- Competition on the market = operators are competing directly against each other.
- Competition for the market = where entry to the network is restricted, it is possible to organize competition for the exclusive right to service individual routes

Summary (2)

The evidence we have in Britain, Germany, Sweden and France suggest that passenger market intorducing competition to date has been a success.

Although it is not the main cause of traffic growth, franchising has contributed to the provision of improved services carrying more traffic, particularly in the regional market to which (except in Britain) it has been largely confined.

At the same time, in Germany and Sweden it has led to stabilising or declining support per train km. Even in Britain, a substantial increase in cost per train km has been offset by a rise in revenue, due both to increases in traffic per train km and in fares, leading to reducing support.

All this is in marked contrast to the experience of France, where under a state monopoly support per train km has increased by 60%.

Readings for Lecture 7

- Tomeš, Z., Kvizda, M., Jandová, M., & Rederer, V. (2016). Open access passenger rail competition in the Czech Republic. *Transport Policy*, *47*, 203-211.
- Hunold, M., & Wolf, C. (2013). Competitive procurement design: Evidence from regional passenger railway services in Germany.
- Preston, J., & Almutairi, T. (2013). Evaluating the long term impacts of transport policy: An initial assessment of bus deregulation. *Research in transportation economics*, *39*(1), 208-214.

Appendix

Contestable market theory

Based on McCarthy (2001), chapter 6

Theory

- Contestable markets are primarily concerned with competition for the market, not with competition among incumbent producers.
- It is the markets that are contested and, as a result, potential competitors rather than actual competitors play prominent roles in discipling the behaviour of incumbent firm
- Assumption: there are no barriers to entry or exit from the market, there must be a pool of potential entrants .

Case: Competition and contestability in the US airline industry

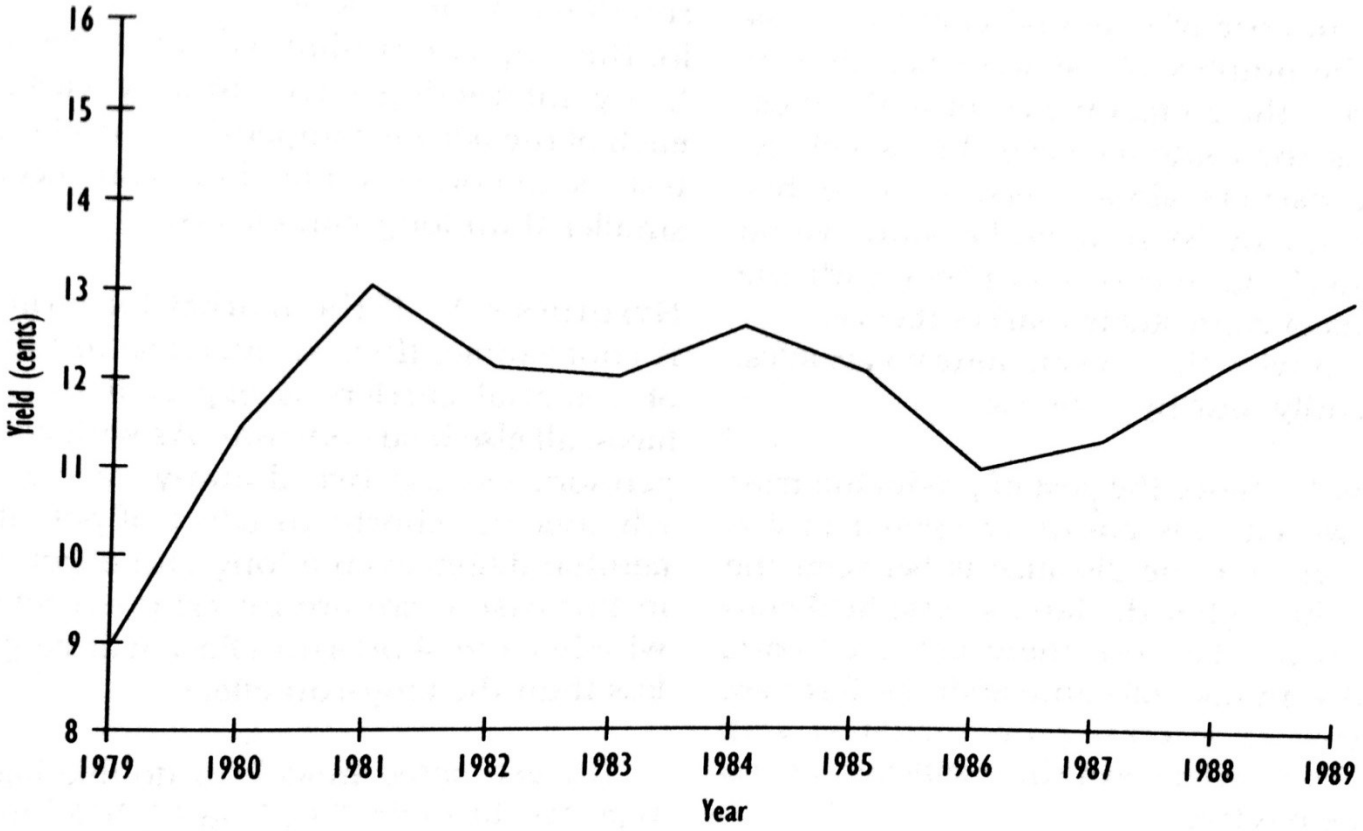


Figure 7.12 Nominal airline revenues, 1979–89.

Case: Competition and contestability in the US airline industry

- The rise in air fares in the latter part of the 1980s prompted governmental concern, among other issues, over whether hubbing had contributed to the nominal price rise.
- This raises a basic question of the roles tht actual and otential competition play in price behaviour over time.
- From a sample of 18573 routes between 1978 and 1988, Morrison and Winston (1990) invetsigated the importance of actual competitors versus potential competitors in determing nominal airline prices.

Variables

- In their analysis, Morrison and Winston assume, that airline fares depend upon five basic determinants:
  - the distance (in miles) between the airports on a route
  - the number of effective competitors on routes at fixed-slot airports
  - the number of effective competitors on routes at nonfixed-slot airports
  - the minimum number of effective competition at route's endpoints
  - the number of potential carriers

Hypotheses

1. The coefficient of Distance is expected to be positive
2. An increase in actual competition will reduce fares → coefficients of number of competitors are expected to be negative
3. It is expected that the effects of actual competition will be greater in the long run than in the short run.
4. If the market for airline routes is contestable, then an increase in the number of potential carriers is expected to reduce air fares.

Results

Dependent variable – ln (Airfare, cents per passenger mile)

Explanatory Variables	Coefficient Estimate (t-statistic)
ln (Distance, in miles)	0.501 (167.0)
ln (Number of effective competitors on routes at fixed slot airports)	
1978 – 81	–0.037 (–3.70)
1982 – 8	–0.119 (–19.8)
ln (Number of effective competitors on routes at non-fixed slot airports)	
1978 – 81	0.006 (0.46)
1982 – 8	–0.035 (–4.38)
ln (Minimum number of effective competitors at a route's endpoints)	
1978 – 81	–0.015 (–1.67)
1982 – 8	–0.201 (–40.2)
ln (Potential carriers)	
1978 – 81	–0.0055 (–9.12)
1982 – 8	–0.0014 (–3.50)
$R^2 = 0.99$	

Source: Morrison and Winston (1990), table 1, p. 390. The estimated model also included time dummy variables for each year but were not reported

Interpretation

- Are the results consistent with contestable markets? Yes a and no.
- The finding that actual competition induces price reduction implies that airline routes are not perfectly contestable.
- But the results do indicate that these markets are imperfectly contestable.
- The increase in the number of potential carriers leads to price reductions, however this effect is relatively small.