Flying High?

Pricing and Competition in the NZ and Tasman Air Travel Market.

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by

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NEW ZEALAND

- Air NZ/Qantas case raised an interesting question
- Competition policy (Antitrust) is based on one big economic idea
- "Monopolist" raises price by ***restricting output***

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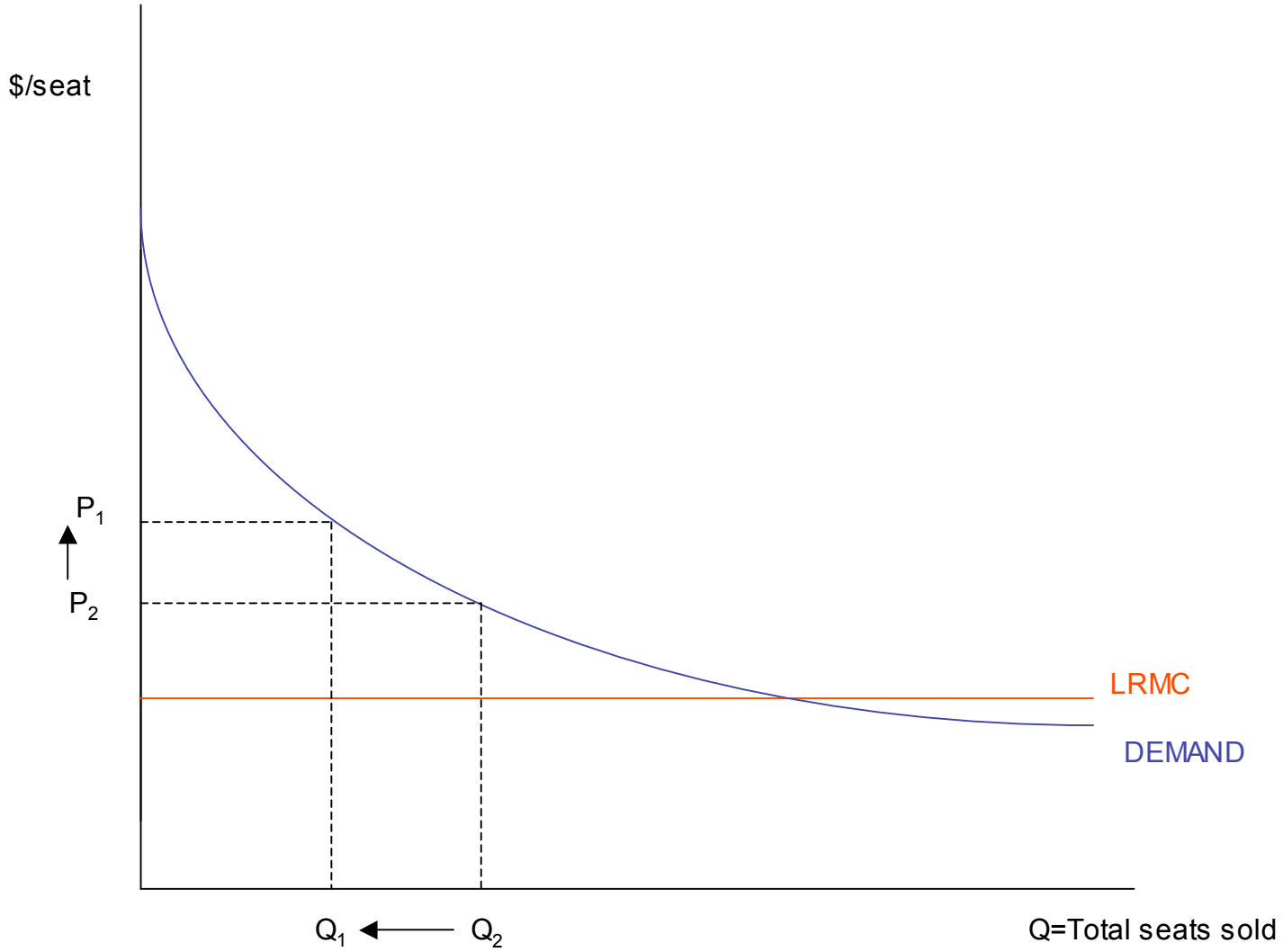
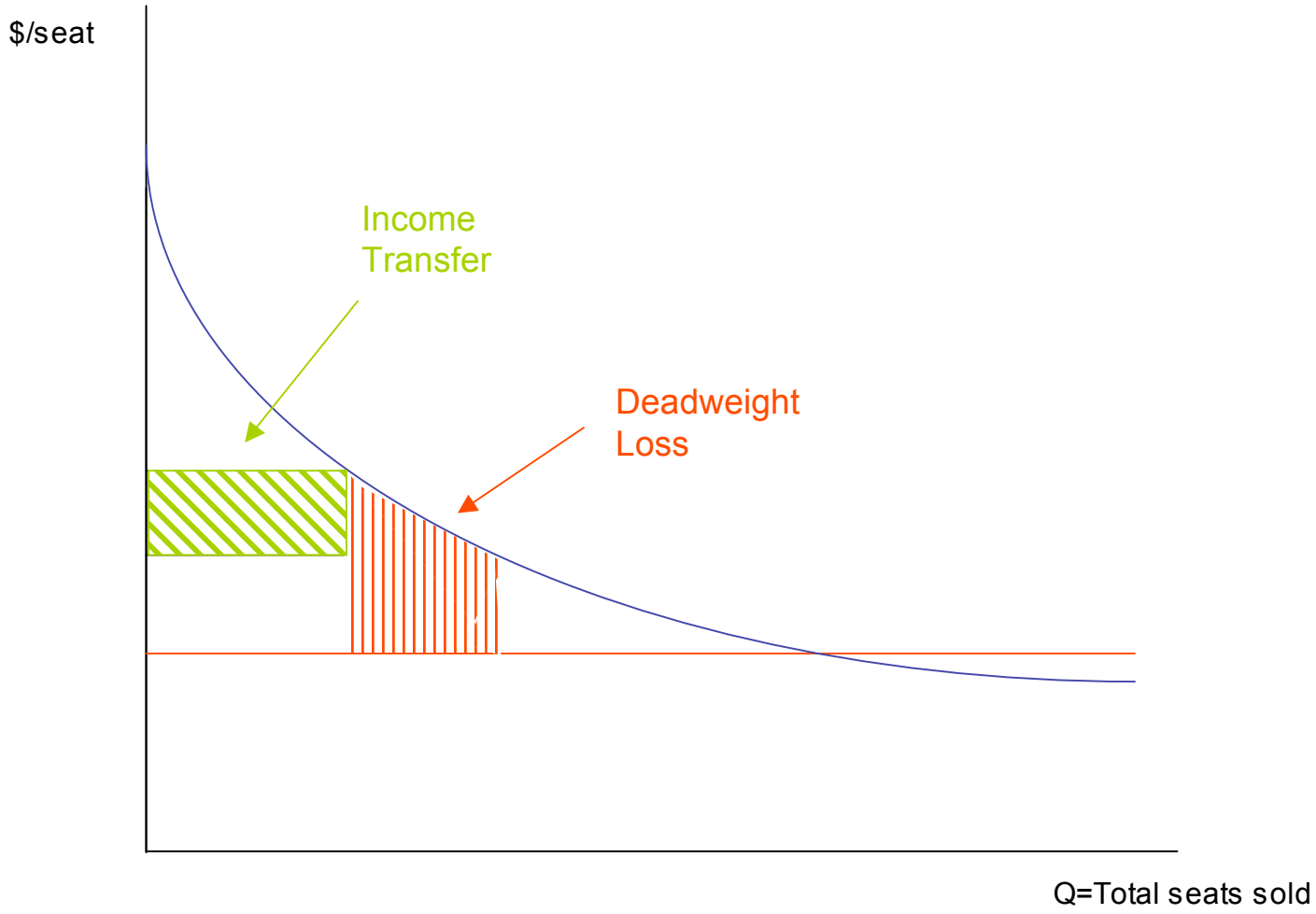


Move from duopoly to monopoly

- Results in two things:
  - ***Transfer*** of money from consumers to suppliers
  - ***Deadweight Loss*** due to restriction of output that would be worth more than it costs to supply

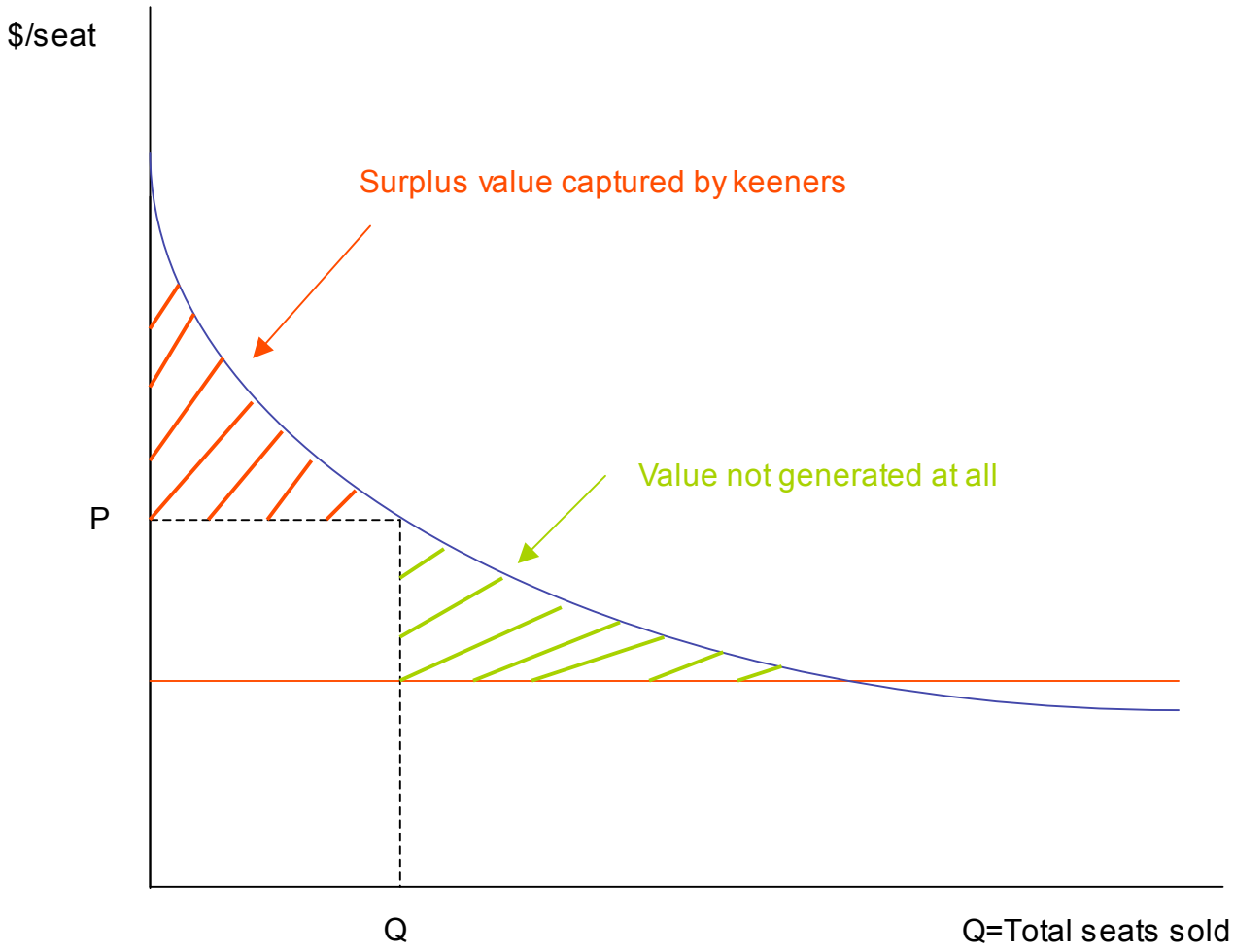

$/seat
Income
Transfer
Deadweight
Loss
Q=Total seats sold

The great battle in Antitrust for past twenty years has been about:

- ***Relative weight*** to be given to transfers and deadweight loss
- Traditional Antitrust: transfers to producers from consumers are ***bad***
- Efficiency-based Antitrust: transfers ***net out***; just deadweight losses matter

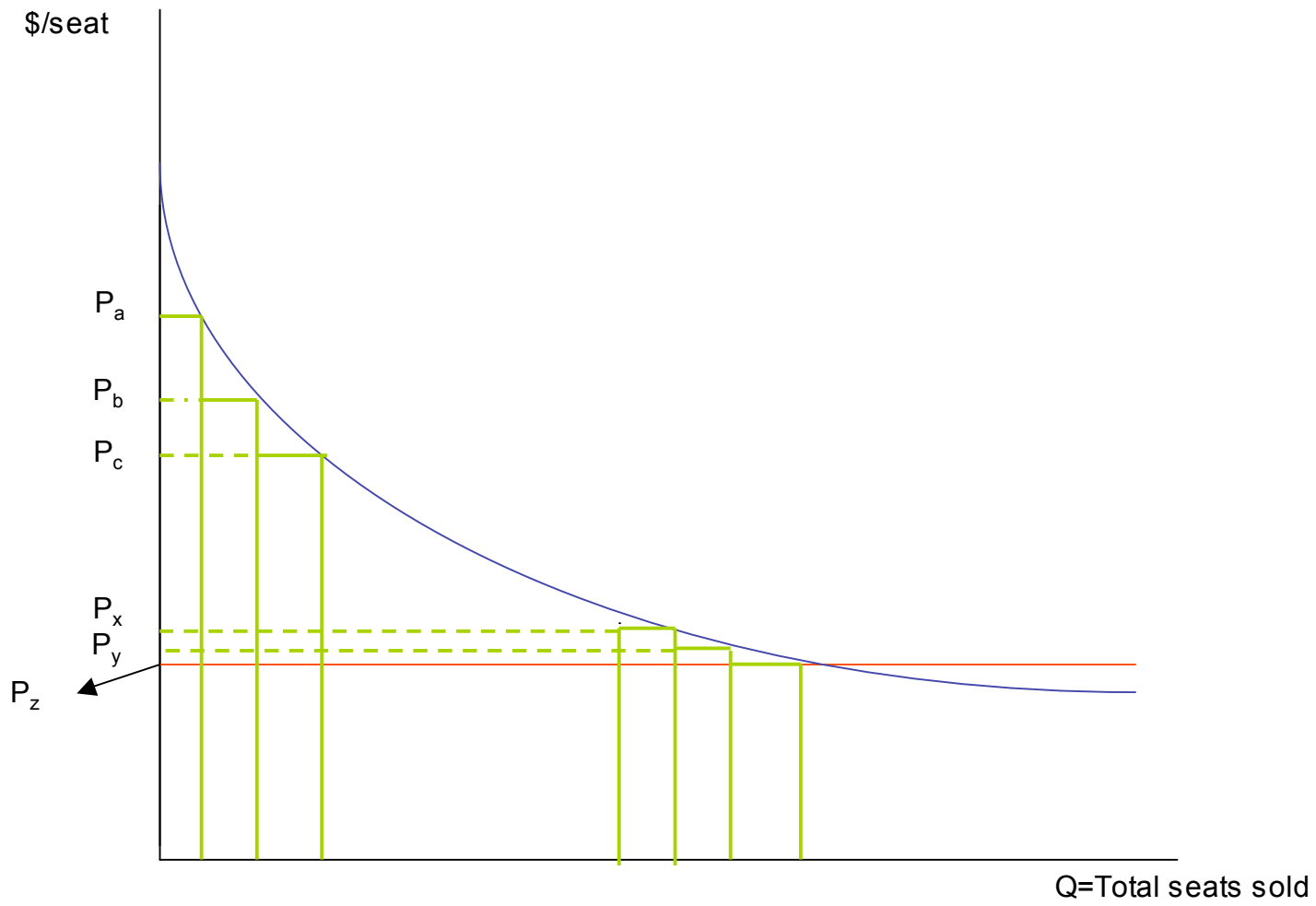
- New Zealand authorities (NZCC, High Court) have gone further than anywhere else in adopting pure efficiency-based anti-trust
- Against the (purpose of) the Law?
- Never mind...
- Ask now: is it *necessarily true* that monopolists 'restrict' output?
- ***They surely don't want to!***

- The point is that T.O.L. pricing ***wastes value***
- Keener customers get the product for less than their willingness to pay
- And less keen customers don't get to consume the product at all ***even though they are willing to pay more than it costs to supply***!


$/seat
Surplus value captured by keeners
Value not generated at all
P
Q
Q=Total seats sold

- Do some ***lateral thinking***
- ***Query*** the key assumption
- The assumption of T.O.L. pricing
- ***What if*** firms can charge more than one price?!?

- Obvious challenge for firm's pricing managers
- ***Capture that surplus***
- Well, suppose they succeeded
- Specifically, suppose a monopoly supplier succeeded in perfect price discrimination
- Means charging every customer their willingness to pay



Perfect Price Discrimination

- Economists call this ***price discrimination***
- Airlines call it ***yield management***
- Definition: “Price discrimination is charging different prices to different customers for the same or similar product (where, if the products are not identical, the costs of supplying them differ by less than the differences in price).

Implication:

- Consumers may pay a lot, on average
- But ***no deadweight loss!***

⟹ ***Case dismissed?***

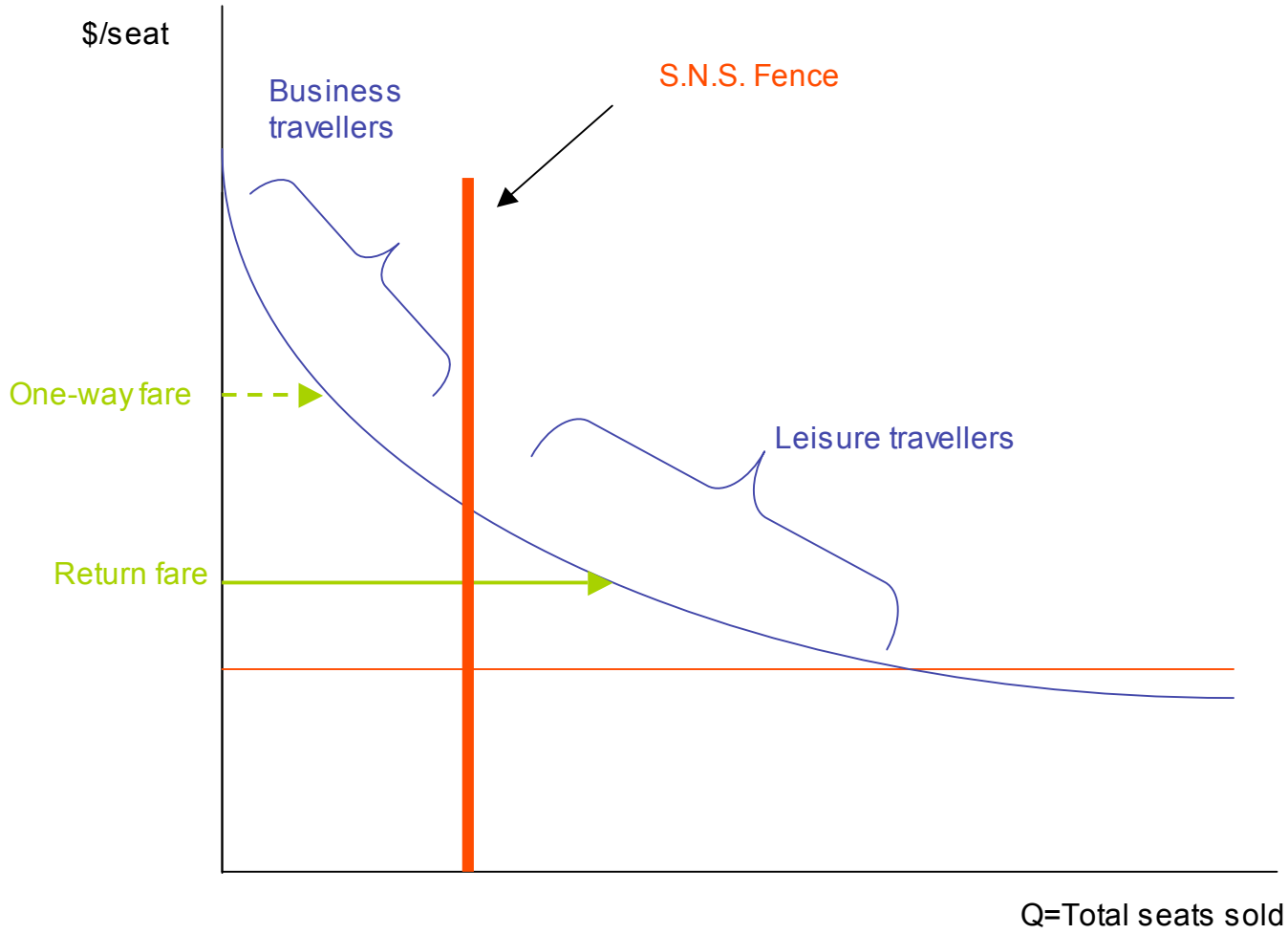
(in New Zealand, anyway)

- I decided to investigate further
- Already knew how pervasive is price discrimination
- In many (most?) markets, there are at least two prices:
  - the posted or sticker or rack-rate price
  - a lower price you get, literally, by just asking for it!


SUPER TAXIS LTD
25% Discount
by mentioning
Yellow Pages ad - Cash only
(Conditions Apply)
All major Credit Cards Accepted
SUPER
TAXIS LTD
AUCKLAND
Ring 913 9000
or 303 3000 / 0800 303 787
to find out about our Specials from
anywhere in Auckland to AIRPORT

Passenger Air Travel Market

- Massive PD for more than twenty years
- Brilliant invention: ***Saturday Night Stay over Requirement***
- Purpose: to separate high-value (business) travellers from low-value discretionary (leisure) travellers.


$/seat
Business travellers
S.N.S. Fence
One-way fare
Leisure travellers
Return fare
Q=Total seats sold

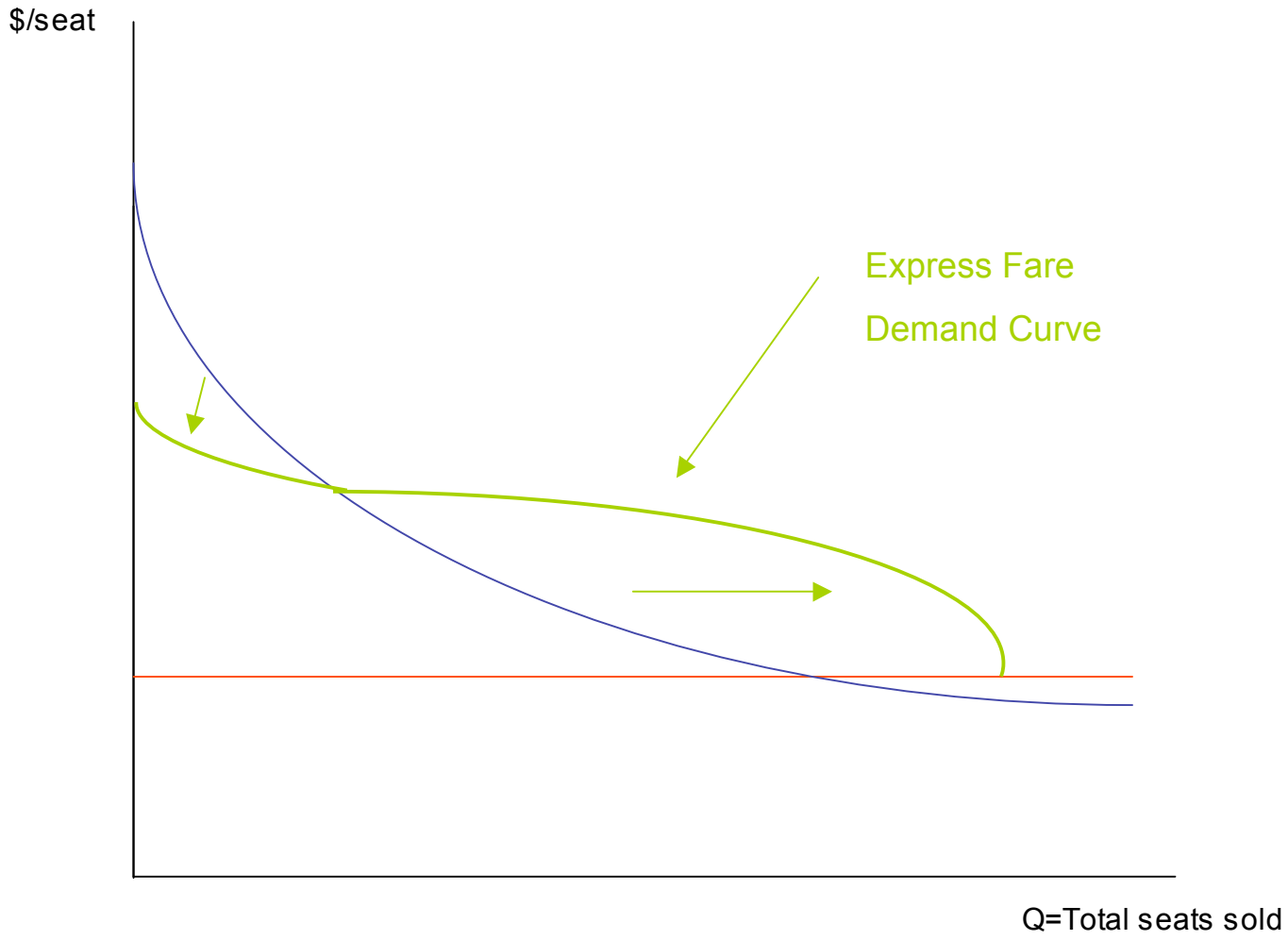
- Great idea, ***but***
- Like all restrictions
- SNS restriction ***destroys some of the value in the market***


$/seat
Customers put-off by
Saturday-stay requirement
Q=Total seats sold

Air New Zealand's World-leading Innovation

- Introduced their 'Express Fare' system (December '02)
  - One-way fares
  - Some restrictions
  - Menu of prices offered simultaneously
  - Adjust availability over time

- Express does make the cheaper fares more attractive to the high-value customers (cannibalises the business market)
- But it also makes them (much) more attractive to everyone else
- Slogan: ***Being There!***


$/seat
Express Fare
Demand Curve
Q=Total seats sold

Basically, Express is a bold attempt to grow the market by reducing average fares

"Simplicity is the essence of affordable travel. Fare structures were extensively simplified and prices reduced by an average of 20% and up to 50%. The everyday low fares stimulated traffice by 22%...capacity increased by 10%" *(Air New Zealand Annual Report, 2003)*

- Air NZ's rival Qantas quickly copied the system
- And so, now, has Delta in the U.S.
- And Air Canada

These ‘new’ fare systems work in two dimensions

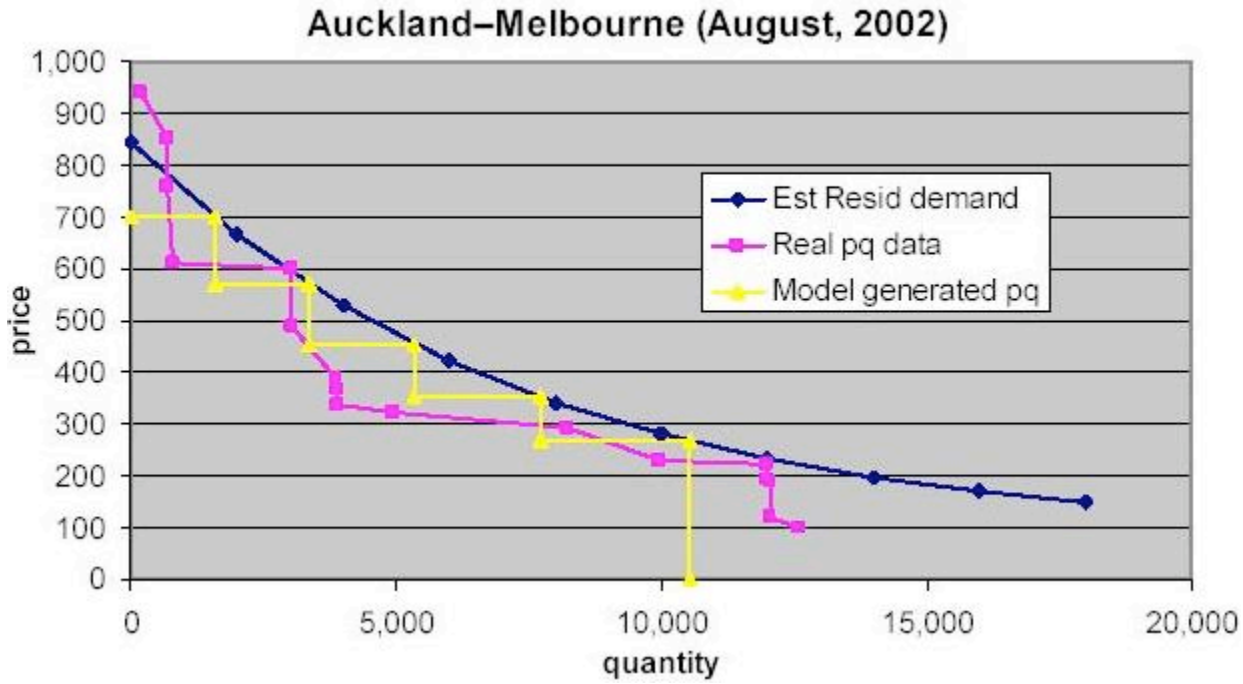
- They have a ‘horizontal’ offering of different prices for the same flight. You can buy whichever one you like
- The idea is to add ‘features’ to the more expensive tickets that cost less to provide than they are worth to the people who buy them
    - eg, offer FFP and status points to people who aren’t paying for their tickets anyway

And they have a ‘dynamic’ dimension:

- number of seats available at lowest fares is limited
- When the fare ‘bucket’ is filled, a new bucket is offered of seats at a higher price

This system of ‘yield management’ attempts to fill each flight with the highest-value customers paying the maximum possible price

(NZCC graphic)



I I set out to study this:

- found that there is no standard theory or model of price discrimination in oligopoly
  - So I developed the theory
- found there was no empirical analysis of NZ domestic and Trans-Tasman airfare pricing
  - So I collected data and analysed this, with research support funding from NZISCR

Results: Theory

For imperfect (3rd Degree Price Discrimination) with a finite and not large number of price steps (or "fare buckets"):

- Increasing PD (ie more price steps)
  - increases the high/low ***dispersion*** of prices
  - but makes ***no difference*** to the ***average*** price paid [!]

(to a first-order linear approximation)

- These results hold too for oligopoly
- That is, under (linear) Cournot-Nash assumption, the average price charged by an oligopoly with n firms is ***not changed by the number of price steps!***
- And, price dispersion decreases as number of firms increases
- So much for theory…..is it true ***in fact***?

Results: Empirics

- Data: took the lowest offered price on Air NZ and Qantas websites
- For about 100 flight numbers on 9 routes
  - eight domestic NZ (4 with Qantas)
  - Auckland-Sydney
- Wednesday flights from Nov 17, 2004 through Jan 05, 2005
- Each flight observed about 12 times, beginning nine weeks before actual flight date
- So ended up with 743 data points

Estimated two models using EViews 4

Dependent variables:

- Average (lowest) fare
- Ratio of highest to lowest low fare

examples of data…

Route	Depart. Time	Flight	Date	P8	P2	P0
AKL-WTN	800	411	17/11/04	195	230	280
AKL-WTN	800	411	24/11/04	195	280	360
AKL-WTN	800	411	01/12/04	225	230	280
AKL-WTN	800	411	08/12/04	195	280	360
AKL-WTN	1530	445	17/11/04	85	90	99
AKL-WTN	1530	445	24/11/04	85	90	99
AKL-WTN	1530	445	01/12/04	85	90	99
AKL-WTN	1530	445	08/12/04	85	90	110

- LNPWAVK: LOG [WEIGHTED AVERAGE LOWEST FARE PER KILOMETRE]
- PDIFF: RATIO LARGEST/SMALLEST LOWEST FARE
- LNDIST: LOG [NON-STOP ROUTE DISTANCE]
- AKLSYD: DUMMY = 1, IF ROUTE IS AUCKLAND-SYDNEY
- HH: HERFINDAHL/HIRSCHMAN INDEX BASED ON NUMBER OF DAILY FLIGHTS BY AIR NZ AND QANTAS ON A ROUTE
- SOLDDUM: DUMMY = 1, IF FLIGHT SOLD OUT BY FLIGHT DATE
- PEAKDUM: DUMMY = 1, IF FLIGHT APPEARS TO BE A 'PEAK-TIME' BUSINESS FLIGHT
- QFDUM: DUMMY = 1 IF A QANTAS FLIGHT

Dependent Variable: LNPWAVK

Method: Least Squares

Date: 05/22/05 Time: 19:26

Sample: 1 743

Included observations: 743

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.77822	0.150022	38.51592	0.0000
LNDIST	-0.44784	0.022625	-19.79389	0.0000
HH	0.49157	0.063745	7.711527	0.0000
PEAKDUM	0.34043	0.033070	10.29440	0.0000
SOLDDUM	0.29370	0.031759	9.248092	0.0000
QFDUM	0.19729	0.027267	-7.235599	0.0000
AKLSYD	0.11786	0.050389	2.339159	0.0196

R-squared	0.64019	Mean dependent var	3.3044
Adjusted R-squared	0.63726	S.D. dependent var	0.4642

Dependent Variable: PDIFF

Method: Least Squares

Date: 05/22/05 Time: 20:05

Sample: 1 743

Included observations: 743

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.33038	0.121665	10.93482	0.0000
HH	0.51880	0.154746	3.352613	0.0008
PEAKDUM	0.29909	0.080300	3.724677	0.0002
SOLDDUM	0.10777	0.077111	1.397706	0.1626
QFDUM	0.27438	0.066152	4.147759	0.0000
AKLSYD	0.2622	0.09423	2.78325	0.0055

R-squared	0.07501	Mean dependent var	1.7087
Adjusted R-squared	0.06873	S.D. dependent var	0.7035

Summary of Empirical Findings:

- Presence of competitor(s) reduces fares
- Air New Zealand earns a fare (fair?) premium over Qantas
- More price discrimination on monopoly routes

Implications for Competition Policy

- If, before, you were mainly worried about the ***distributional*** implication of market dominance
  - You should still be just as worried
- But, if your concern was with the ***allocative efficiency*** implications of dominance
  - You can be less worried