A Proposal for Quality Adjusting Rail Fares

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Aims

- Develop an alternative method of quality adjustment, which is more applicable to a service sector price index.

- Illustrate the proposed concepts with a test of concept index.

Background

- Usual approach to creating a price index assumes the quality of product/service remains constant over the time period.
- Where quality is varying methods have been developed for quality adjustment of products e.g. Hedonic Methods.
- Quality adjustment for services however remains an issue.

The Cost of Time Approach

- Deals with services which involves customers saving or using time.
- The key issue is the valuation of time.

Testing the Concept for Rail Fares

- Rail was chosen as it gives us measurable and objective quality indicators, (timetabled duration, actual duration etc).
- A sample of 50 routes that were the highest revenue routes in 2001 was selected.
- One journey per route was selected.

Data Collection

- On a monthly basis the following was collected:
  - Fare for the Journey
  - Timetabled Duration
  - Quality Data:
    - Actual Duration
    - Cancellations
    - Changes in Frequency

Valuing the Cost of Time

- Three types of travel time relevant to the study were identified. (working, non-working and waiting time)
- Each was given a valuation (1998 prices)
- The valuations were increased to 2003 prices in-line with the rise in household gross disposable income per head

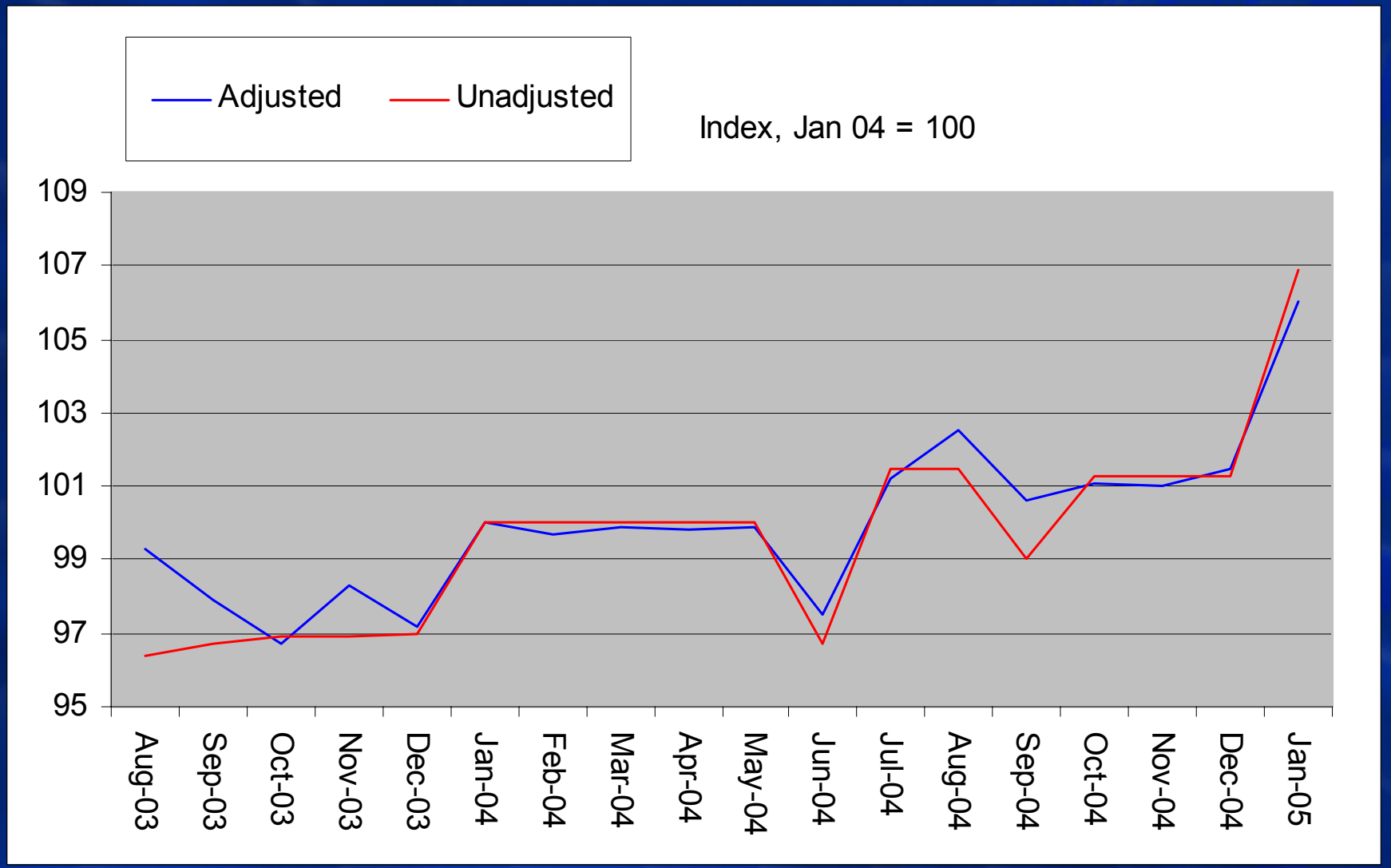
Valuing the Cost of Time

- On average over a whole week 94% of journeys are work related and 6% are not.
- Using these weights give us the valuation of £7.47 per hour for delays.
- For changes in frequency, and delays from cancellations, the waiting time value of £11.73 per hour is used.

Results

- Once the quality data has been valued it is added to the fare for the journey to obtain the quality adjusted fare.
- The quality adjusted index is then produced.
- The adjusted and unadjusted indices produced are comparable.
- On this basis there is little evidence of a potential bias in rail fares, e.g. quality of service has increased in-line with price increases.

Results


Adjusted
Unadjusted
Index, Jan 04 = 100
109
107
105
103
101
99
97
95
Aug-03
Sep-03
Oct-03
Nov-03
Dec-03
Jan-04
Feb-04
Mar-04
Apr-04
May-04
Jun-04
Jul-04
Aug-04
Sep-04
Oct-04
Nov-04
Dec-04
Jan-05

Limitations

- The sample taken was not random.
- The quality of service experienced on the selected high revenue routes may not reflect the quality of service on all routes.
- Collecting quality data only once a month is unlikely to represent the entire month accurately.
- Valuing the cost of time is a difficult concept and in-depth research would be required before deciding on a valuation.

Conclusion

- In principal this idea seems a feasible method to adjust for changes in quality of service.
- Valuing the cost of time however, may prove to be a difficult task.
- Deciding which quality measures are included and excluded will require extensive research as it will effect the adjusted price.
- Many quality measures will be difficult to quantify in terms of time.

Conclusion

- How are improvements in quality dealt with? Will this reduce the adjusted price?
- Much more data would be required for the quality measures to ensure you are getting a truly representative sample.
- Producing a method for possible trade-off between different quality measures would be necessary but probably difficult to implement.

Questions

Any Questions?