

Methodology of the Monthly Index of Services

Land Transport; Transport via Pipelines Industry Review

Introduction

At the launch of the experimental Index of Services (IoS) in December 2000, a commitment was made to review and improve where practical, the sources and methods used to measure the service sector. This paper outlines the findings of the Land Transport; Transport via Pipelines Industry Review.

Summary

The industry review for land transport; transport via pipelines (known hereafter as land transport) has recommended:

- to replace existing volume series with new volume series
- to stop using deflated mail and parcels receipts
- to replace the existing combined deflator with a more representative combined deflator

Although the methodology will be changed all the way back to 1994 in the IoS system, only the open period from 2001 will be revised. The recommendations of this review have no impact on top level Gross Domestic Product (GDP) for the open period.

How important is Land Transport?

In terms of Gross Value Added (GVA) weights in 2001, land transport (SIC¹ Division 60) represents:

- 3.3% of the IoS
- 2.3% of Total GVA

Land Transport is published as part of the Transport, Storage and Communications² component within the IoS.

¹ The SIC is the Standard Industrial Classification, and this is the classification system used in the UK to define industrial groupings. The 4-digit refers to the level of detail and is generally the level at which data is collected and aggregated from within GDP(O) and IoS. More detail on this can be found in the IoS Methodology documentation at <http://www.statistics.gov.uk/iosmethodology>

² This covers section I of the UK SIC

Methodology

Previous methodology³

Within Division 60 there are six 4-digit SICs⁴ classes within three 3-digit SIC groups. Table 1 below gives the details of the classes as well as the methodology that was previously used:

Table 1

SIC	Description	Output indicator	Source	Deflator	Weight in 2000 (GDP=1000)	% of division
60.10	Transport via railways	1. Passenger travel (million passenger-km) a) Season ticket holders b) Other ticket holders	SRA		2.7	11.3%
		2. Freight transport (million tonne-km) a) Coal and coke b) Other commodities	SRA		0.4	1.8%
		c) Deflated mail and parcel receipts (£ million)	SRA	GDP Implied deflator	0.0	0.1%
60.21	Other scheduled passenger land transport	Deflated turnover (£ million)	MIDSS	RPI: Rail fares RPI: Bus and coach fares	4.5	18.9%
60.22	Taxi operation	Deflated turnover from VAT returns (£ million)	HMCE	HE: Taxi fares	1.0	4.2%
		HE on taxi fares deflated at source	HE	Deflated at source	1.3	5.6%
60.23	Other passenger land transport	Deflated turnover (£ million)	MIDSS	CSPI: Bus and coach hire	0.6	2.5%
60.24	Freight transport by road	Deflated turnover (£ million)	MIDSS	CSPI: Road haulage	13.1	55.6%
60.30	Transport via pipelines	No activity in UK	-	-	-	-

SRA – Strategic Rail Authority, MIDSS – Monthly Inquiry into Distribution and Services Sector, RPI – Retail Price Index, VAT – Value Added Tax, HMCE – HM Customs and Excise, HE – Household Expenditure, CSPI – Corporate Services Price Index

For the first class, 60.10, volume measures and deflated receipts were used as the proxy to measure GVA. The volume and receipts data were supplied by the Strategic Rail Authority. The deflator used for mail and parcel receipts was the general GDP implied deflator.

For other scheduled passenger land transport, other passenger land transport and freight transport by road (60.21, 60.23 and 60.24) deflated turnover was used as the proxy. The turnover source was ONS's Monthly Inquiry into Distribution and Services Sector (MIDSS). The deflator used for 60.21 was fares based upon a combination of Retail Price Index (RPI) components. The deflators for 60.23 and 60.24 were the Corporate Services Price Index (CSPI) for bus and coach hire and the CSPI for road haulage respectively.

For taxi operation, 60.22, turnover deflated by the Household Expenditure (HE) for taxi fares combined with the HE deflated at source were used as the proxy. The turnover source was from Value Added Tax (VAT) returns, supplied by HM Customs and Excise (HMCE).

For the final group, transport via pipelines, no activity in the UK was recorded.

³ In this report, the previous methodology refers to the methodology used prior to Blue Book 2004, and the new methodology to the methodology taken on at Blue Book 2004

⁴ See SIC 2003 documentation for details of the full breakdown of division 92 in the UK SIC at <http://www.statistics.gov.uk/sic2003>

Reasons for review

The main reasons for reviewing the land transport industry were as follows:

- although volume measures are a reasonable proxy for transport, they should be broken down into as much detail as possible
- the general GDP implied deflator is not specific to the mail and parcels freight industry
- one of the RPIs used is not specific to the other scheduled passenger land transport industry
- taxi operation uses VAT as the turnover source, whereas MIDSS data are seen as the preferred turnover data source for a monthly series, because VAT data are:
 - not timely enough for inclusion in the first publication of the IoS
 - only pseudo-monthly data (most VAT returns are made quarterly)
 - not compatible with pre-1996 data due to a different classification system being used
- activity in the transport via pipelines industry is recorded in other ONS publications, eg the Annual Business Inquiry (ABI)

What should we be doing?

In October 2001, Eurostat (European Union's Statistical Office) published the '[Handbook on price and volume measures in national accounts](#)'. The handbook provides guidance by product, on what price and volume methods should ideally be used (A methods), on what are acceptable methods (B methods) and on those methods that should not be used (C methods). The handbook has been written in the context of annual data but the same rules apply to sub-annual data.

The handbook gives some guidance for this industry and reinforces the general view that deflated turnover is preferred for market output, deflated by quality adjusted series that represent the services provided. Volume indicators based on passenger-kilometres and tonnes-kilometres are acceptable - the more detail available the better will be the result.

Issues faced by the industry review

A summary of the key features, output definition, issues and recommendations for each group within the division follows.

60.1 Transport via railways

Key features

This group includes passenger transport by inter-city services and inter-urban services and all freight transport by rail.

Passenger transport by inter-city services

Passenger rail transport on the main rail network is primarily provided by the 25 (as at June 2003) Train Operating Companies (TOCs) who were awarded franchises when British Rail was privatised in the mid 1990s. These franchises are currently managed by the Strategic Rail

Authority (SRA). Many of the current franchises are due for renewal in 2004, although some have already been renewed and/or extended (and in one instance terminated early).

As well as receiving revenue from ticket sales, the TOCs receive government subsidies and other funding to enable them to provide passenger services at a 'reasonable' cost and to improve rail services while still allowing them to operate at a profit. Some fares, mainly standard weekly season tickets and 'saver' tickets (where these existed before June 1995), are regulated by the SRA who can cap increases. Unregulated fares include first class fares, cheap day returns and 'advance purchase' fares. Revenue from these fares amounts to about 60% of total fares revenue⁵. Subsidies vary from nothing up to 36.9 pence per passenger kilometre⁶.

Freight transport

Freight transport by rail is operated by four freight-operating companies (FOCs) within the UK. The FOCs are run as commercial businesses with income from their customers being offset by charges for the use of the network, including the channel tunnel. The government provides grants for improvements to freight facilities, e.g. distribution terminals, handling equipment and track access, as part of its policy to encourage the transportation of freight away from the roads and onto the rail network⁷.

Output definition

Within the transport industry, the service being offered is moving people and/or goods from one place to another.

Issues

- conceptual quality of the volume data
- timeliness and periodicity of volume data
- diminishing mail and parcel receipts
- deflator is not representative of the industry it is measuring
- should turnover data be used instead of volume data?

Conceptual quality of the volume data

The current levels of detail of passenger and freight volumes are acceptable as a B Method. However, Eurostat advises that greater detail give better results. SRA are able to provide:

- three categories for passenger services (full price, season and reduced price tickets)
- seven categories for freight (coal, metals, construction, oil and petroleum, international, domestic inter-modal and other)

⁵ Further information on regulated and unregulated fares can be found on the Questions and Answers page on SRA's website: www.sra.gov.uk/sra/faq

⁶ Taken from 'On Track Rail Performance Trends Oct 2002 to Mar 2003' published by SRA in June 2003 – available from SRA's website: www.sra.gov.uk

⁷ Freight moved is the major series used by the SRA to monitor freight activity. It provides the benchmark for the DfT 10 Year Plan target of 80% growth in rail freight from 2000-01. See SRA's quarterly publication 'National Rail Trends' – available from www.sra.gov.uk

Timeliness and periodicity of volume data

SRA currently collect data from the TOCs on a four weekly basis rather than monthly or quarterly. This is partly to do with the existing systems but also because travel patterns (especially in respect of passengers) follow a weekly pattern, i.e. commuters Monday to Friday and leisure trips on Saturday and Sunday, with Bank Holidays being the exception. The four weekly data are converted into quarterly data. Similarly, SRA collect weekly data from the FOCs and convert it into quarterly data for the freight industry.

During the second half of 2003, SRA introduced a new ticketing system that will facilitate the extraction of data in 'temporal splits', eg monthly, quarterly. However, this will only be feasible for passenger data from September 2003. SRA has no plans to change the system that provides freight data.

Diminishing mail and parcel receipts

Historically, the Royal Mail used British Rail to transport large volumes of mail and parcels across the UK. However, the deregulation of mail services (except for standard letters) and the hiving off of the Royal Mail's parcels business into Parcelforce have contributed towards an expanding courier industry. Royal Mail is now reconsidering its transport policy with a view to replacing rail with road transport. Hence it is likely that the current GVA weight of 0.03 parts per thousand is likely to decrease.

The deflator is not representative of this industry

The GDP implied deflator is a general deflator for the whole of the economy and as such is neither representative of nor appropriate to the transportation of mail and parcels by rail.

Should turnover data be used instead of volume data?

No MIDSS data are available for this industry but the volume data have been compared with VAT turnover, ABI turnover and ABI GVA. There was little coherence between the paths of the series. As has been discussed elsewhere⁸ the benefits of MIDSS being more timely, more monthly and better briefed make MIDSS the preferred option over VAT.

However, there are inherent problems with using turnover data for the passenger sector of this industry as the complexity of ticket types makes model pricing difficult. Subsidies are a further complication. It is also well reported⁹ that rail journeys suffer from over-crowding, late arrivals, cancellations etc. that should all be accounted for in the quality adjustment of a price index. This is being looked at for the RPI but it remains a difficult area. Thus, since volume measures are independent of which sector the industry operates in, they are the preferred method.

Data do exist on late trains, cancellations etc. and they could be used for quality adjustment but the problem is deciding by how much should output be affected by quality change. There

⁸ See http://www.statistics.gov.uk/iosmethodology/downloads/Hotels_and_restaurants_full_review.pdf for a full analysis on this issue

⁹ See SRA's six monthly publication 'On Track Rail performance trends' at www.sra.gov.uk

is no solution yet, although the Atkinson Review of Government Output¹⁰ is also looking at this issue and may in the future provide a framework that could be implemented here.

Recommendations

- 1. Replace the two volume series for passenger travel by rail with the three volume series.**
- 2. Replace the two volume series for freight transport by rail with the seven volume series.**
- 3. Stop using deflated mail and parcels receipts (the new volume series for freight include mail and parcels)**

60.21 Other scheduled passenger land transport

Key features

This class is split into three subclasses that include inter-city coach services, urban and suburban passenger railway transportation by underground, metro etc, and other scheduled land passenger transport not elsewhere classified. The key feature of these industries is that the services provided run on scheduled routes, picking up and setting down passengers at normally fixed stops and usually following a fixed time schedule.

Up until the mid 1980s, the bus and coach industry was dominated by the state owned National Bus Company which ran services on long-distance routes and by the municipal transport authorities which provided local bus services. This politicisation and monopoly left the UK bus sector grossly inefficient and highly dependent on subsidies. However, deregulation in the late 1980s (England and Wales, except London) and in the early 1990s (Scotland) led to stiff competition amongst private companies resulting in cheaper fares and improved quality of service (new routes and more accessible buses). Subsidies are now a thing of the past, with the companies contributing substantial sums to the Treasury through corporation tax and taxes paid on their employees and the fuel they consume.

Inter-city coaches

One company operates a scheduled coach network across Britain while other companies mainly provide regional services between town/cities and/or services to and from London.

Urban and suburban passenger railway transportation by underground, metro and similar systems

London Underground dominates this class. However, with the development of light railway/tram systems in many of the cities in the UK, the industry is expanding.

Other scheduled land transport not elsewhere classified

This class includes all local bus services. Some of these services are operated by large corporations covering several locations within the UK, while others are operated by companies that have come about by the privatisation of the original municipal transport

¹⁰ For more about the Atkinson Review see <http://www.statistics.gov.uk/cci/nugget.asp?id=663>

authorities. In London, deregulation per se did not happen but instead the public sector body, London Buses, became a franchising authority.

Issues

- the deflator is not representative of the industry it is measuring
- what weights should be used to combine the deflators?

The deflator is not representative of the industry

Prices collected for the RPI for rail fares include some that are not representative of 60.21. A customised RPI has been constructed for the rail element of this industry. This will be combined with the RPI for bus and coach fares which covers the road element of the industry.

Weightings of the two RPIs

Currently, the two RPIs are combined in a 50:50 ratio. Weights for the new combined RPI have been calculated from the Consumer Price Index (CPI).

Recommendations

- 4. RPI to provide a customised deflator for urban and suburban passenger railway transportation by underground, metro and similar systems.**
- 5. CPI weights to be used to create the combined industry deflator.**

60.22 Taxi operation; 60.23 Other passenger land transport; 60.24 Freight transport by road

No recommendations to change these three classes have been made at this time.

60.30 Transport via pipelines

Key features

This class includes the transport of gases, liquids, slurry and other commodities via pipelines. However it excludes the distribution of natural or manufactured gas via mains (classified to SIC 40.20), the distribution of water or steam for heating, power and other purposes (classified to SIC 40.30) and the distribution of water (classified to SIC 41.00). Thus, the class is primarily concerned with the transport of oil via pipelines.

Britain is criss-crossed by a network of pipelines, some of them are owned by individual oil companies dedicated to supplying their own terminals, some are joint ventures, and others belong to the government. The pipelines supply distribution terminals with oil products, eg petrol, diesel and jet fuel, from refineries and also support the movement of crude oil between tanker terminals and refineries.

Issue

Should 60.30 be measured separately?

Having established that there is transport via pipelines activity in the UK, the issue is whether this should be reported separately or combined with another SIC group or class.

Analysis of the Inter-Departmental Business Register¹¹ (IDBR) shows that the total VAT turnover of companies classified to 60.30 amounts to only 0.5% of the total turnover of division 60. No MIDSS data are collected for this group although turnover data are collected and published by the ABI. The Department of Trade and Industry (DTI) collects annual volume data that is published by the Department for Transport (DfT)¹².

Recommendations

6. Remove any reference to ‘no activity in the UK’ in published data and make it clear that this industry is included in 60.24.

Who was consulted as part of the Industry Review process?

Within the ONS, there was comprehensive consultation with relevant teams both within National Accounts and in the survey areas. In terms of external consultations we are grateful to the assistance received from the Strategic Rail Authority, the Department for Transport and the Department of Trade and Industry.

New methodology

In summary the industry review for division 60 has made the following recommendations that were implemented at Blue Book 2004:

- to replace existing volume series with new volume series
- to stop using deflated mail and parcels receipts
- to replace the existing combined deflator with a more representative combined deflator

¹¹ The IDBR is the comprehensive list of UK businesses that is used by government for statistical purposes. It provides a sampling frame for surveys of businesses carried out by the ONS and by other government departments. It is also a key data source for analyses of business activity. For more information please see <http://www.statistics.gov.uk/idbr>

¹² Section 5 of DfT’s publication ‘Transport Trends 2002’ – available from DfT’s website: www.dft.gov.uk

Benefits and issues of new methodology

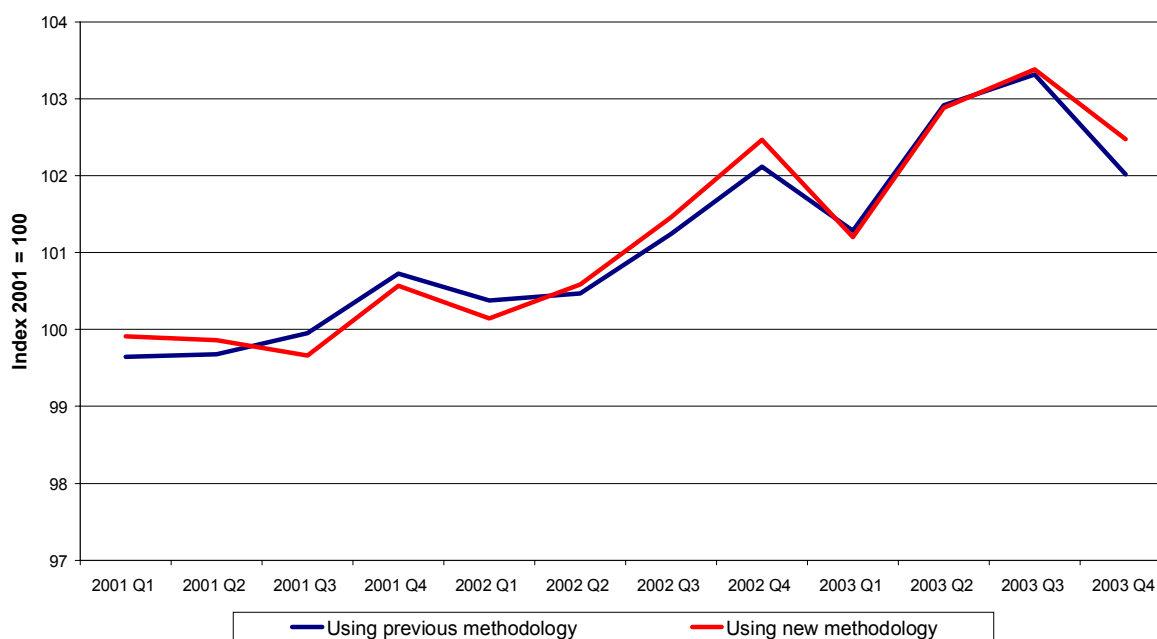
Benefits	V	Assumptions
More detailed volume data will be used for transport via railways.		Quality is constant for railways.
Prospect of true monthly data for rail passenger transport.		
More appropriate deflator being used		
Consistency across ONS publications for 60.30.		

Impact of new methodology

The graph below shows the impact of the new methodology on Division 60. The data has been revised back to January 2001. This in line with the open period for revisions set-out in the National Accounts Revisions Policy for Blue Book 2004.

Figure 1

Land transport (SIC92 division 60) constant prices seasonally adjusted



Contact Information

Any questions or comments on this article are welcome, as are offers to participate in the process of improving industry sources and methods. Any enquiries should be addressed to:

Steve Drew
Short Term Output Indicators Division
Office for National Statistics
Room 1.473
Government Buildings
Cardiff Road
Newport
NP10 8XG

Tel: 01633 812384

E-mail: steve.drew@ons.gov.uk

Annex 1

Comparison of MIDSS and VAT turnover (from Hotels and Restaurant Industry Review Report).

Table 2

VAT Benefits		VAT Quality Issues
Data represent a virtual census of the business population, except those under the VAT threshold	V	Latest month's estimate based on a forecast as the data is not available in time (VAT data is only usable after 9 weeks)
Data are free of charge. Compliance is mandatory so no additional burden on business from ONS use of the data		No briefing is provided with the VAT data
		Data are only part-monthly, coming from a combination of monthly and quarterly contributors
		Estimation relies on the regularity of response rates at each delivery
		There is no ONS control over the data source
		The turnover definition used by HMCE is not consistent with the MIDSS definition
		Does not use the IDBR
MIDSS Benefits		MIDSS Quality Issues
Latest month's estimate based on real data, not a forecast	V	Sample sizes for smaller businesses are relatively small, but large businesses are fully enumerated
Data are monthly		Ratio estimation and rotational sampling tend to cause high levels of volatility in the data (although rotation adjustments partly address this) ¹³
Good briefing information available		MIDSS for Division 55 are collected inclusive of VAT, whereas all other MIDSS are collected excluding VAT
MIDSS are an ONS data source – hence there is control over the data source		
MIDSS are sampled from the Inter Department Business Register (IDBR), which has a higher quality of industrial classification		
Data is available after 5 weeks		
MIDSS covers all businesses classified to an SIC (i.e. non-VAT registered)		

¹³ More details on quality adjustments can be found at http://www.statistics.gov.uk/iosmethodology/quality_assurance.asp

Annex 2

Comparison of new and old methods

Group/ Class	Industry Description	Current Output Indicator	Current Deflators	Proposed Output Indicator	Proposed Deflators	GVA weight per 1000 within division
60.1	Transport via railways	Volume measures Deflated mail and parcel receipts	- General GDP deflator	More detailed volume measures	n/a	3.11
60.21	Other scheduled passenger land transport	Deflated turnover from MIDSS returns	RPI: Rail fares RPI: Bus and coach fares (50:50)	Deflated turnover from MIDSS	RPI: Underground and metro fares RPI: Bus and coach fares (20 : 80)	4.47
60.22	Taxi operation	Deflated turnover from VAT returns HE: taxis at 1995 prices	HE: Taxi fares Deflated at source	As current	As current	2.31
60.23	Other passenger land transport	Deflated turnover from MIDSS returns	CSPI: Bus and coach hire	As current	As current	0.59
60.24	Freight transport by road	Deflated turnover from MIDSS returns	CSPI: Road haulage	As current	As current	13.11
60.3	Transport via pipelines	n/a – 'no activity'	n/a	n/a – 'included in 60.24'	n/a	n/a

HE – Household Expenditure, VAT – Value Added Tax, MIDSS – Monthly Inquiry of the Distributive and Service Sectors

References

Pike R and Reed G (2000). *Introducing the Experimental Monthly Index of Services*. Economic Trends, No. 565, pp. 51–68. Available for download from <http://www.statistics.gov.uk/CCI/article.asp?ID=68>

Drew S and Morgan D (2003). Experimental monthly index of services – An update. Economic Trends, No. 599. Available for download from <http://www.statistics.gov.uk/CCI/article.asp?ID=476>

Pike R and Drew S (2002). *Experimental Monthly Index of Services*. Economic Trends, No. 583, pp. 70–78. Available for download from <http://www.statistics.gov.uk/CCI/article.asp?ID=138>

Sharp P (2003), GDP: Output approach methodological guide – Revised. National Statistics Methodology Series No. 32. ISBN 1 85774 537 X. Available for download from: <http://www.statistics.gov.uk/StatBase/Product.asp?vlnk=10383>

Eurostat (2001). Handbook on price and volume measures in national accounts, ISBN 92 894 2000 6. Available for download from: http://europa.eu.int/comm/eurostat/Public/datashop/print-catalogue/EN?catalogue=Eurostat&product=KS-41-01-543-__-N-EN

Office for National Statistics (2002). IoS Documentation. Available for download from: <http://www.statistics.gov.uk/iosmethodology>