

TSUG

Transport Statistics UsersGroup

Monthly Review: May 2017

This month's review has shown the predominance of car and van in the long-distance domestic trips in England. German Railways and Irish Rail have shown record rise in number of passengers. Beijing Airport has been seen to be the World's busiest airport. We've also got Kit Mitchel's statistics digest. Letter to the Editor is a new feature. The seminar on 'Significant is not Enough & Stated is not Revealed' will be held on Wednesday 17th May 2017 at TfL

One reader has reported that an email to newsletter@tsug.org.uk bounced because this "mailbox is inactive". Has any other reader had this problem, or is it a one-off? If you have, please contact airrailtoday@googlemail.com

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Dates of the next TSUG seminars

Date	Venue	Topic
Wed-17-May	TfL	Significant is not Enough & Stated is not Revealed

The seminars can be booked through the TSUG website at www.tsug.org.uk/seminars.php

Statistics Digest

STATISTICS DIGEST MAY 2017

This digest lists major sets of statistics that have been released recently or which are due to be released. Regular monthly and quarterly releases are not included. The web links given allow free downloads of the documents cited.

Recent releases from Department for Transport

Recent releases from Department for Transport	
13 April	Vehicle licensing statistics: 2016 https://www.gov.uk/government/statistics/vehicle-licensing-statistics-2016
13 April	Road freight statistics: October 2015 to September 2016 https://www.gov.uk/government/statistics/road-freight-statistics-october-2015-to-september-2016
27 April	Road traffic estimates in Great Britain: 2016 https://www.gov.uk/government/statistics/road-traffic-estimates-in-great-britain-2016
27 April	Road lengths in Great Britain: 2016 https://www.gov.uk/government/statistics/road-lengths-in-great-britain-2016
27 April	Journey time statistics: 2015 https://www.gov.uk/government/statistics/journey-time-statistics-2015

Forthcoming releases from Department for Transport	
4 May	Renewable Transport Fuel Obligation: Year 9 (2016 to 2017) report 3 (15 April 2016 to 14 April 2017 supply) https://www.gov.uk/government/collections/biofuels-statistics
18 May	Travel time measures for local 'A' roads, England: April 2016 to March 2017 https://www.gov.uk/government/collections/road-congestion-and-reliability-statistics
18 May	Travel time measures for the Strategic Road Network: April 2016 to March 2017 https://www.gov.uk/government/collections/road-congestion-and-reliability-statistics
14 June	Search and rescue helicopter statistics: year ending March 2017 https://www.gov.uk/government/collections/search-and-rescue-helicopter-statistics
29 June	Vehicle speed compliance statistics for Great Britain: 2016 https://www.gov.uk/government/collections/speeds-statistics
29 June	Reported road casualties in Great Britain, main results: 2016 https://www.gov.uk/government/collections/road-accidents-and-safety-statistics
29 June	Light rail and tram statistics: year ending March 2017 https://www.gov.uk/government/collections/light-rail-and-tram-statistics

Forthcoming releases from Department for Transport

13 July	Road freight statistics: 2016 https://www.gov.uk/government/collections/road-freight-domestic-and-international-statistics
July	Air passenger experience of security screening: 2016 https://www.gov.uk/government/collections/aviation-statistics
July	Rail passenger numbers and crowding on weekdays in major cities in England and Wales: 2016 https://www.gov.uk/government/collections/rail-statistics
July	British social attitudes survey: 2016 https://www.gov.uk/government/collections/statistics-on-public-attitudes-to-transport
3 August (provisional)	Renewable Transport Fuel Obligation: Year 9 (2016 to 2017) report 4 (15 April 2016 to 14 April 2017 supply) https://www.gov.uk/government/collections/biofuels-statistics
August	Reported Road Casualties in Great Britain: 2016 provisional estimates for accidents involving illegal alcohol levels https://www.gov.uk/government/collections/road-accidents-and-safety-statistics
August	Provisional road traffic estimates, Great Britain: July 2016 to June 2017 https://www.gov.uk/government/collections/road-traffic-statistics
August	Travel time measures for local 'A' roads, England: July 2016 to June 2017 https://www.gov.uk/government/collections/road-congestion-and-reliability-statistics
August	Travel time measures for the strategic road network: July 2016 to June 2017 https://www.gov.uk/government/collections/road-congestion-and-reliability-statistics
August	Taxi and private hire vehicles statistics, England: 2017 https://www.gov.uk/government/collections/taxi-statistics
Sept	Port freight statistics: 2016 final figures https://www.gov.uk/government/collections/maritime-and-shipping-statistics
Sept	National Travel Survey: 2016 https://www.gov.uk/government/collections/national-travel-survey-statistics
Sept	Reported road casualties Great Britain, annual report: 2016 https://www.gov.uk/government/collections/road-accidents-and-safety-statistics
Sept	Local area walking and cycling in England: 2015 to 2016 https://www.gov.uk/government/collections/walking-and-cycling-statistics

Recent national and international releases

30 Jan	ITF Transport Outlook 2017 (read on-line only) http://www.keepeek.com/Digital-Asset-Management/oecd/transport/itf-transport-outlook-2017_9789282108000-en#.WP4bXGeGNfw#page1
5 April	Transport statistics at regional level Statistics to March 2016 http://ec.europa.eu/eurostat/statistics-explained/index.php/Transport_statistics_at_regional_level
Sept 2016	Traffic and Accident data – summary statistics Germany 2015 http://www.bast.de/EN/Publications/Media/Unfallkarten-national-englisch.pdf?__blob=publicationFile

29 March	La Sécurité Routière en France: Bilan de l'accidentalité de l'année 2015
http://www.securite-routiere.gouv.fr/la-securite-routiere/l-observatoire-national-interministeriel-de-la-securite-routiere/accidentalite-routiere/bilans-annuels	
April 2016	Bilan 2015 de la qualité de service des transports de voyageurs en France
http://www.ladocumentationfrancaise.fr/var/storage/rapports-publics/164000517.pdf	

Seminar Write-up

Members can find past seminar slides here: http://www.tsug.org.uk/past_seminars.php

TSUG works

The Maritime Statistics seminar on 27 March was interesting, even to one for whom this isn't an area of major interest. What was more interesting was to see TSUG doing what it should be doing – bringing together statistics users and statistics providers and discussing how the latter could better meet the needs of the former.

Table SPAS0201 was the focus of the discussion. It shows domestic sea passengers by type of route. The breakdown is as follows: Great Britain to Northern Ireland, to the Isle of Man, to the Channel Islands, to Orkney & Shetland, then 'all other sea crossings', inter-island (broken down by Isle of Wight, Scottish and other), and All River Ferries. That final category embraces about half of all domestic sea (waterway actually, but the table is headed sea!) passengers. Can it be broken down – disaggregated – more, to make it more useful to users?

Possibly, is the answer. Some of the data may be commercially confidential, but this seems unlikely. The discussion was followed up with some well-researched email correspondence discussing ways forward.

So in future you may be able to separate Mersey ferry passengers from Tamar ferry passengers – thanks to TSUG doing its job!

General News

Letter to the Editor

Dear Editor

The item in TSUG Review for April 2017 reporting the very modest results of an attempt by BART to use financial incentives to nudge peak hour travellers in the San Francisco area into changing the times of their journeys to relieve pressure on the system invites discussion about the lemming-like behaviour of commuters around the world.

Virtually all cities have what used to be called rush hours. In order to accommodate these surges in travel, transport systems are obliged to provide additional capacity (both in infrastructure and rolling stock) which is un- or under-occupied for the rest of the day, and which is therefore an economically inefficient use of resources.

Efforts to exhort passengers to avoid travelling at these times appear to have little effect. Clearly, there are some employees whose hours of work are necessarily fixed

and who have little or no control over when their commuting journeys are made. But there are many others whose presence is only obligatory during core hours and who could (and often do) enjoy some choice in when they start and finish work. Yet experiments with flexible hours seem simply to result in some churn within the peak, those switching to earlier trips being offset by others switching to later ones, with little or no net effect on the overall spread of travel times - at least until the transport system becomes physically incapable of carrying more people.

Perhaps the solution lies in a system of staggered hours, such as that which I believe was operated at one time in some Lancashire mill towns to relieve pressure on their local bus networks? But what organisational structures and powers of enforcement would be needed impose this?

It is hard to believe that many people would freely choose to endure the travel conditions experienced on congested urban networks at the busiest times. So why do they still travel then? It can only be because the discomfort of peak travel conditions is outweighed in travellers' eyes by the perceived personal benefits of everyone being able to leave (and return) home at the same time(s).

What are these benefits? What constraints in people's out-of-work lives condemn so many of them to commute simultaneously in a manner that appears irrational? I am sure that in the ranks of TSUG there must be those who have researched the question and can offer some insight into the sociological or psychological factors underlying this enduring problem.

Yours

John Cartledge

DfT looking for Survey Participants

Dear Colleague,

At the Department of Transport and Planning of the University of Westminster, we are conducting an online survey as part of a research project looking into 'Mobility Planners learning experience'. It has two purposes. The first is to gather valuable insights into how academics and professionals involved in transport planning experienced their Masters' degree. The second purpose is to understand how these individuals rate different subject areas in terms of their relevance for their professional practice. We would greatly appreciate your participation in this survey and feel free to forward it to your colleagues.

Follow this link to the Survey:

[Take the survey](#)

Or copy and paste the URL below into your internet browser:

https://wminplanandtrans.eu.qualtrics.com/jfe/form/SV_6A6xldT9SvL2q17?Q_DL=56HTZZs3mvOYAeN_6A6xldT9SvL2q17_MLRP_5tZM3ZMr4zxUN9z&Q_CHL=email

Many thanks for your help!

Enrica

Enrica Papa, PhD
Senior Lecturer
Course Leader MSc Transport Planning and Management

TSUG Review

Long-distance domestic trips

DfT recently published Table NTS0317, Long distance trips within Great Britain by main mode and length: England, 2011/15. Figures are for the five survey years combined.

Car and van predominates, with 79% of all trips over 50 miles being made by this mode. Use tails off by distance, so for trips over 350 miles, the percentage is down to 48.

Bus and coach represents 4% of the total – 9% for trips of over 250 miles. Rail (it seems superfluous to note that this includes both main line and London Underground) accounts for 15% of all trips over 50 miles, and a very consistent proportion of all subsets – 15% of 50 to under 75 mile trips, 13% of 75 to under 100 mile trips, 15% of 100 to under 150 mile trips, 19% of both 150 to under 250, and 250 to under 350 mile trips, and 14% of over 350 mile trips.

Air accounts for 4% of 250 to under 350 mile trips and 27% of over 350 mile trips.

Energy and the environment

DfT recently released ENV0401, “Total greenhouse gas emissions from transport, United Kingdom: annual from 1990” This has a total transport emissions figure for each year from 1990, for domestic and international transport, in millions of tonnes of CO₂ equivalent.

Data are for the basket of seven greenhouse gases carbon dioxide, methane, nitrous oxide, hydro-fluorocarbons, perfluorocarbons, sulphur hexafluoride and nitrogen trifluoride.

Data for 5-year periods are given below. The drop in domestic emissions between 2005 and 2010 is particularly noticeable – presumably the Great Recession of 2008. There is a similar drop in international emissions – looking at the detail, these were 45.7m in 2008 and 40.7 in 2010 (a drop of over 10%).

	1990	1995	2000	2005	2010	2015
Domestic	121.9	122.2	126.7	130.4	120.1	120.0
International	24.1	28.1	36.8	39.6	40.7	40.7
Total	145.9	150.4	163.5	173.1	160.7	160.7

Also noticeable is the growth in international, compared to domestic. In 1990, international was 16.5% of the total: by 2015, this had climbed to 25.3%. Domestic emissions are virtually the same today as they were in 1990: total emissions are 10% higher because of a 69% growth in international emissions.

International emissions are from fuel used by outbound ships and aircraft (it is assumed that inbound traffic fills up abroad). There may be slight issues of accuracy

here – if an easyJet flight fills up in Luton and flies to Paris and then on to Milan before refuelling there, the Paris – Milan fuel shows up as UK international. How much this kind of thing happens depends on the relative cost of fuel and the penalty of carrying it!

From the Maritime Statistics seminar in March, we know that cruise passenger numbers have increased from 0.5m in 2000 to 2.0m in 2015: this will account for some of the increase. But no doubt more is from air travel.

In 1991 (and there was a change of methodology between 1990 and 1991, making 1990 non-comparable with 2015) there were 1.353m air traffic movements (ATMs) at UK airports (from table AVI0101). In 2015, the figure was 2.111m – a 56% increase. Passenger numbers increased from 95m to 251m, a significantly greater increase presumably reflecting the increased size of aircraft.

ATM figures include both international and domestic flights. The current TSGB (table AVI0102a) only gives an international:domestic split back to 2005, but since then the number of domestic ATMs has decreased from 0.414m to 0.300m (it dropped to 0.289m in 2014). The number of international ATMs has fluctuated considerably, but over the last 10 years it has increased from 1.474m to 1.511m.

Observant readers will notice a discrepancy between the total number of ATMs in the previous two paragraphs. AVI0101 includes domestic flights twice – one take-off, one landing. AVI0102a removes this double-counting. The same double counting affects passenger numbers – without this, international passenger numbers increased from 178m (2005) to 210m (2015) and domestic decreased from 25m to 21m over the same time.

Given the relatively small increase in ATMs, presumably the increase in international emissions is partly due to increased aircraft size and partly to the increase in cruise liner traffic.

World's largest container ship

From CILT News

Tokyo-Mitsui O.S.K. Lines, Ltd. has announced that the world's largest container ship, MOL Triumph was delivered from Samsung Heavy Industries Co., Ltd. (SHI) on March 27, 2017.

MOL's newest vessel, the first of a fleet of six 20,000 TEU container ships for the company, was named MOL Triumph in a ceremony at SHI in South Korea on March 15, 2017. At 400 meters in length and 58.8 meters in width, MOL Triumph is currently the world's largest container ship with a capacity of 20,170 TEU.

MOL Triumph will set off on her maiden voyage from Xingang in April 2017 and will sail to Dalian, Qingdao, Shanghai, Ningbo, Hong Kong, Yantian and Singapore. She will then transit through the Suez Canal and continue on to Tangier, Southampton, Hamburg, Rotterdam and Le Havre. She will then call at Tangier and Jebel Ali on the way back to Asia.

The vessel is equipped with various new sustainable technologies to provide more efficient fuel consumption and improved environmental performance. The new ships are equipped with various advanced energy-saving technologies including low friction underwater paint, high efficiency propeller and rudder, Savor Stator as a stream fin on the hull body, and an optimized fine hull form which together can further reduce

fuel consumption and CO₂ emissions/container moved by about 25-30% when compared to 14,000 TEU-class ships. Additionally, the vessel has also been designed with the option to convert to LNG fuel in future in view of the implementation of the International Maritime Organization's new regulation to limit SOx emission in marine fuels which will come into effect in 2020.

MOL will take the delivery of the second 20,000 TEU-class vessel in May 2017. Eventually there will be six of the 20,000 TEU-class container ships and they will be phased in gradually on the existing trade routes of MOL.

Rail

Delhi Metro ridership

From a Delhi Metro press release



The cumulative ridership of the Delhi Metro within a financial year crossed the one billion mark on 29th March for the first time, further establishing DMRC as the mass transportation backbone of the National Capital Region (NCR).

From 1st April 2016, a total of 1.001 billion passengers have travelled by the Delhi Metro, registering a 6.56% growth in average daily ridership since the last

Delhi Metro Trains at Dwarka

financial year 2015-16. The average daily ridership has increased by 43% in the last five years.

Year	Ridership (in millions)	Average daily ridership (in millions)	Network length
2012-13	702.95 (70.29 cr)	1.93	190
2013-14	801.70 (80.17 cr)	2.20	190
2014-15	870.91 (87.09 cr)	2.39	193
2015-16	946.95 (94.69 cr)	2.59	213
2016-17 (Till 29 th March, 17)	1001.65 (100.165 cr)	2.76	213

The Delhi Metro today ranks 10th in terms of ridership among the 34 top Metro systems of the world.

The Delhi Metro currently operates with a fleet of 227 train sets comprising of 128 six coach, 58 eight coach and 41 four coach trains across all its corridors. The process of adding 258 new coaches to the fleet to augment the carrying capacity of the system started last October and the process is scheduled to be completed by the end of the next financial year.

Deutsche Bahn back in the black

From a DB press release



Berlin Hauptbahnhof

German Railways (DB) saw a new record number of long distance passengers and a jump in profits in 2016. Long distance trains carried 139m passengers, 7.1m (5.4%) more than the previous year. In addition, substantial improvements to the punctuality of DB's long distance services (up 4.5 percentage points) were accompanied by an increase in customer satisfaction. Adjusted earnings before interest and taxes (EBIT) exceeded internal targets and rose

more than 10% year on year, to over €1.95 billion.

Revenues at DB rose to €40.6 billion by €108m (0.3%) in 2016. Gross capital expenditure rose by €166m (1.8%) to €9.5 billion.

A total of 4.4 billion people used DB's trains and buses in Europe in 2016, a year-on-year increase of 81m (1.9%). Rail passenger transport in Germany saw an increase in passenger numbers of 7m, to more than 2 billion, with long distance patronage up and regional patronage constant.

DB Arriva boosted its passenger numbers by 98m (5.9%) to 1.76 billion in 2016, due in part to its successful bids for major franchises in the UK and the Netherlands. It also raised its share in the UK rail transport market from 14% to 23%.

Tonne kilometres of rail freight fell by 3.8% year on year, to 94.7 billion.

As rail traffic rose in 2016, so did volume produced on the DB rail network – by 1.3% to a new record of 1.07 billion train path kilometres. Non-DB rail companies increased their share once again, to a new high of 30%. In light of these increases, the number of stops at DB passenger stations also rose, by 1.1%, with non-DB companies accounting for 35.3% (up 12.4% year on year).

A separate statistical fact sheet said that 4.417bn passengers were carried, 2.365bn of them by rail and 2.021bn of them in Germany (compared with 1.72bn in Great Britain). DB operated 24,234 trains a day (which sounds similar to the number of trains operated in Great Britain on the national rail network. However this is a statistic I cannot easily find on the ORR website – can any expert out there help, please?).

DB also carried 2052m bus passengers, and 277m tonnes of freight: they operated 4362 freight trains a day.

Irish Rail Census

From Modern Railways

The National Transport Authority published 2015 rail census results, showing boarding and alighting figures at every station on IÉ's network on 19 November 2015. 141,500 passengers were recorded – 13% up from the previous year. Dublin's Connolly, Pearse, Heuston and Tara stations were the busiest four stations, handling a third of the network total.

DART services saw 65,000 passengers, up 18% on 2014.

The only station in the top 10 outside Dublin was Cork Kent.

11% of the ridership (28,000 journeys) was on intercity trains: this was up 6% on the previous year. However, the Dublin – Belfast Enterprise service saw ridership 19% down.

Carrick-on-Suir (on the Waterford – Limerick line) recorded 1 passenger boarding: it is served by 4 trains each day which are used by 79 passengers in total.

Local rail in Germany

From an International Railway Journal report



Halle Station

DB Regio remained the clear leader in the German regional rail market in 2016 according to annual figures released by the German Federation of Regional Passenger Rail Authorities (BAG-SPNV), but the incumbent operator's market share continues to decline as competitors strengthen their position.

Regional transport authorities purchased a total of 673m train-km from more than 60

train operating companies last year.

DB Regio's share of the market fell by 4% to 67%. Transdev Germany was the incumbent's largest competitor with a market share of 7%, followed by Netinera (5%) and Benex (3%). Netinera is a subsidiary of FS, Italian State Railways. Eleven of DB's competitors now control 27% of the overall market, with the remaining 6% distributed between 35 companies.

Rail rolling stock funding

From International Railway Journal online

According to studies undertaken by Roland Berger for the Swiss Rail Working Group, private finance in European rolling stock procurement has increased from 12% in 2011-2013 to 20% in 2013-2015, while the proportion of projects involving private finance has jumped from 18% to 35%.

The increase occurred at a time when the total investment in rolling stock fell from €13.3bn in 2011-2013 to €12.1bn in 2013-2015. The study also shows that private finance in the latter period increased by more than €750m and made up for some of the shortfall in public funding.

There seems to be a direct correlation between market liberalisation and private capital, according to the Rail Working Group.

In its latest study, Roland Berger examined 440 rolling stock procurement projects in 22 countries in Europe between 2013 and 2015, accounting for an average annual investment of €12.1bn. Of this €9.7bn was directly or indirectly financed by the public sector, while €2.4bn was privately funded. The study shows a marked difference between western and eastern Europe, with private finance accounting for 22% of total investment in train procurement in western Europe compared with 11% in eastern Europe.

SBB in 2016



Swiss High Speed Train at Milano Centrale about to depart for Basle

During the reporting period, consolidated net income for Swiss Federal Railways (SBB) was CHF 380.6m, significantly better than 2015's CHF 245.7m. The improvement was due in particular to higher profits from the disposal of real estate (CHF +83.1m), the improved financial result (CHF +78.2m) and the recovery in freight services (earnings CHF +22.6m compared to the previous year).

Passenger traffic generated earnings of

CHF 139.2m (CHF +8.7m compared to the previous year). Passenger revenues rose compared to the previous year by CHF 10.5m in spite of the reduction in international services.

Real Estate generated earnings before compensation payments of CHF 432.6m (CHF +90.2m compared to the previous year) in particular due to the earnings from the disposal of real estate (CHF 221.1m). Of this, CHF 150.0m in compensation was paid to finance Infrastructure and CHF 270.9m to restructure the SBB Pension Fund.

In 2016, Freight Services returned to the black (CHF +22.6m compared to the previous year) with earnings of CHF 1.1m thanks to the positive volume development at SBB Cargo International and additional savings as well as one-off effects.

As in previous years, Infrastructure also provided higher contributions to maintenance in 2016 which were not completely covered by the funds of the service-level agreement. This led to a negative result of CHF -102.8m (2015: CHF -96.3m).

Scotland's Busiest Trains

Transport Scotland has published a report, 'Scotrail's top 10 busiest trains' (<https://www.transport.gov.scot/media/35768/ts-rail-scotrails-top-10-busiest-trains-report-march-2017.pdf>). It does what it says on the tin – lists the most crowded trains on the Scotrail network. Helpfully, it also lists the remedial actions proposed (new trains, rolling stock cascades leading to strengthening) and the adjacent trains which could be used instead.

These 10 trains have peak sector load factors ranging from 109% to 146%: the peak sector journey times are between 9 and 27 minutes.

At one time, standards for overcrowding were that no-one should stand except by choice for more than 20 minutes, and for journeys less than 20 minutes, load factors should not exceed 135%. As a London commuter of long standing, I believe that 135% load factors are comfortable – you have to get above 150% to be really jammed together.

Observations welcome.

What a bigger tunnel can do

From constructionequipmentguide.com

When riders on the Washington DC Metro's Yellow Line come above ground to cross the Potomac River, they can see CSX freight trains with cargo containers stacked two high on a rail bridge nearby that also carries Amtrak and commuter trains. Meanwhile, 320km away at the CSX Transportation train yard in Portsmouth, Va. — near where giant container ships offload thousands of intermodal cargo-filled boxes at a time into the East Coast's rail and truck network — the Virginian-Pilot reported that a longstanding backlog of parked single-stack trains has been eliminated.

All of this is because CSX, in late December, was able to open the first of two new, double-stack tunnels in downtown Washington, D.C., to replace a century-old tunnel that was too low for double-stack trains. At the same time, its single track limited overall train traffic capacity.

That bottleneck had restricted one of the nation's largest freight rail companies to hauling just single-stack loads in much of its system. Previously, the carrier would have to run longer trains, and often put trains into a queue, to keep containers flowing up or down the coast or into the nation's heartland.

That made customers either wait for freight-filled boxes to move later by train, or put containers on the highways, one at a time, so that truck drivers could get them more quickly to destination.

But double-stacking means a train half the size can haul the same number, requiring fewer trains and fewer locomotives and crew members. That cuts transportation costs even as it speeds rail deliveries, makes train hauls more competitive and keeps more container trucks off some of the busiest highways in the nation.

CSX began construction in the Virginia Avenue Tunnel project in May 2015. It is still more than a year away from completion of both tunnels, when it will be able to move trains in each direction at the same time. But getting through its first phase is already taking pressure off the rail and highway system for many hundreds of miles throughout the Eastern Seaboard and into the Midwest.

CSX said it moved the first double-stack train through the new tunnel on December 23, hauling containers between Portsmouth, Va., and North Baltimore, Ohio, south of Toledo.

Work on the adjacent tunnel has already begun, which includes demolition of the existing structure and building a new one, and CSX expects to finish the entire project on schedule in mid-2018.

While the company covered part of the costs, the initiative has also been supported by the District of Columbia, Maryland, North Carolina, Ohio, Pennsylvania, Virginia and West Virginia, including retailers and firms that rely heavily on containerized

shipping for their supply chains. For just the Virginia Avenue Tunnel project, CSX covered most of the costs with a contribution from the state of Virginia.

Air

Chinese aviation 2016

Lightly edited from anna.aero



Shanghai Pudong Airport

While Beijing was beaten to the 100m passenger mark by Atlanta in 2016, according to ACI data it was the world's busiest airport in January 2017 with 4,090,549 departing passengers (representing 8.5% growth) just beating off Dubai with 4,018,504 (+9.7%) and Atlanta with 3,885,716 (+0.3%). However, the airport will be closing one runway for maintenance work for most of April resulting in an expected 20% reduction in movements that month.

The city's new airport, Daxing International, is currently set to open in 2019 with the potential for seven runways.

In 2016 182 Chinese airports handled at least 100,000 passengers, 77 of which handled more than a million passengers that year. In 2015 this figure was 70 and in 2014 it was 64. A total of 17 airports handled over 20m passengers last year, up from just 11 in 2015. Among those airports with more than five million passengers (of which there are 43) the fastest-growing were Lanzhou (traffic up 36.1%) and Zhuhai (30.2%).

Official monthly statistics show that domestic air travel grew by 10.7% in 2016 while international traffic on Chinese carriers grew by 22.7%. However, domestic traffic, which had grown by 9% across the first eight months of the year, saw faster growth in the last four months of 2016, averaging 13.7% between September and December. The reverse happened with international traffic. Here, growth was 28% between January and August but slipped to just 13.5% in the last third of the year. So far for 2017 only January figures are available. Statistics for the first month of this year show that domestic traffic has grown 17.4% and international traffic is up 19.1%.

Last year China's airports handled over 1 billion passengers for the first time. CAAC reports that the country's 200+ airports actually processed 1,016m customers in 2016, an increase of 11.1% when compared with 2015. This compares with growth of 10.0% in 2015, 10.2% in 2014, 11.0% in 2013, 9.5% in 2012 and 10.0% in 2011. Only the US has more passengers using its airports.

Compared with 2015 there was no change in the rankings for the top four airports. However, [Kunming](#) jumped two places from seventh to fifth, leap-frogging Shenzhen and Shanghai Hongqiao, thanks to seeing demand grow by just under 12%. The only new entry in the top 15 was Zhengzhou which displaced [Urumqi](#). Zhengzhou's growth of 20% was the highest among the leading airports. The slowest-growing airport was Shanghai Hongqiao which registered just 3.5% growth, well below the national average.

Airport	% growth on 2015	Million annual passengers
Beijing	5.0	94.39
Shanghai Pudong	9.8	66.00
Guangzhou	8.2	59.73
Chengdu	9.0	46.04
Kunming	11.9	41.98
Shenzhen	5.7	41.98
Shanghai Hongqiao	3.5	40.46
Xian	12.2	37.00
Chongqing	10.8	35.89
Hangzhou	11.4	31.60
Xiamen	4.2	22.74
Nanjing	16.7	22.36
Changsha	13.8	21.30
Wuhan	9.7	20.77
Zhengzhou	20.0	20.76

Xian, 8th on the list, is the largest Chinese airport without a rail link – although three are being planned or built.

OTP: Punctuality of Airlines

OAG has recently published an on-time performance star awards list for airlines. ‘On time’ is within 15 minutes of schedule.

Three airlines – Safair, Jazeera and Air Baltic – achieve 90% or better: they rate five stars. 12 more do better than 87% on time – four stars. 30 – a list headed by Iberia – achieve 83% or better (that’s three stars). 20 – a list headed by Alaska – make 80% or better (a two-star rating). 38 are in the ‘also ran’ list – better than 75%, just one star. The full list can be found at <https://www.oag.com/on-time-performance-star-ratings>.

Punctuality of trains in Great Britain is also published, by DfT. This is a tougher definition – within five minutes for regional and suburban trains, and within 10 minutes for long distance ones.

The overall average is 87.7% - below target but pretty good, compared with airlines. Nine TOCs achieve 90% or better. At the top of the table are Merseyrail on 95.8%, TfL Rail on 94.7% and c2c and LOROL on 94.5%. 10 are between 87% and 89.9%, and four between 80 and 86.9%. Just one – Govia Thameslink – was below, on 74.2%.

Heathrow Express achieved 89.8, better than any of the airlines serving Heathrow.

Apples and pears? To a degree, of course. But both face hazards. Airlines have headwinds and must display a high degree of mechanical reliability – but they don’t have lineside fires or trespassers – or suicides – to deal with. And they are less affected by other traffic.

Recent IATA statistics

IATA’s **Air Passenger Market Analysis** for November (published mid-January) noted that industry-wide passenger traffic growth accelerated to a nine-month high of 7.6% year-on-year in November. There was robust international RPK growth in most regions, although domestic passenger markets remain mixed.

Industry-wide passenger load factor posted a record November-high of 78.9%. Annual growth in industry-wide revenue passenger kilometres (RPKs) climbed to a nine-month high of 7.6% year-on-year in November, up from 5.6% in October. Once again, carriers from the Middle East and Asia Pacific regions posted the fastest traffic growth (11.0% and 9.9% respectively), while those from North America posted the slowest growth rate (3.1%).

Adjusting for the fact that 2016 was a leap year, IATA estimates that industry-wide RPKs grew by around 5.8% year-on-year in January-November – a slowdown from the (oil price-assisted) 7.1% in the same period of 2015. Nonetheless, such growth was still ahead of its 10-year average pace (5.5%). Moreover, having moderated during H1 2016, the upward trend in seasonally-adjusted traffic has strengthened in recent months' data too. This relates to two factors.

The first is an easing in the headwinds stemming from high-profile terrorist attacks and political instability that weighted on the traffic trend during H1 2016. To be clear, such headwinds have not disappeared, as attested by ongoing tragic events. But encouragingly the upward trend in European international traffic has resumed, while the trend on the Asia to Europe market, which tends to be highly sensitive to such shock events, has increased too.

The second factor behind the stronger passenger trend is a pick-up in the global economic cycle. While sizeable risks remain, the global purchasing managers' index reached a fresh 34-month high in December, driven in large part by advanced economies .

IATA published its **Airlines Financial Monitor** for November-December in mid January. Highlights were that the financial results from Q3 2016 underlined another solid quarter for industry financial performance, but there were signs that momentum in the profitability cycle had weakened.

Global airline share prices outperformed the global equity market in H2 2016. This outperformance was driven mainly by North American shares, on renewed optimism that such airlines can stabilize unit revenues in 2017.

Brent crude oil prices have been broadly stable around \$US55/bbl since the start of December. A rebalancing in the oil market is slowly taking place, but prices are expected to trend modestly upwards.

The intense downward pressure on yields has eased since earlier in 2016, but the trend is still pointing downwards.

Premium traffic growth lagged behind economy on most key routes in 2016, but premium airfares generally held up better. The premium segment remains a key buffer for airline financial performance.

Annual growth in passenger volumes accelerated to its fastest pace in nine months in November, with the seasonally-adjusted load factor rising to a record high. November's data underlined a strong 2016 peak season for air freight, with freight volumes up 6.8% year-on-year. The freight load factor has recovered partly in recent months from its early-2016 low.

The **December – January report**, published on 9th February, said that the initial financial results for Q4 2016 indicated a continued solid performance for the air

transport industry, although there were signs that momentum in the profitability cycle had weakened.

Global airline share prices began the year on a positive note, rising 1.5% in January and 6.8% over the past year. However, the industry has lagged the overall performance of global equities on both measures.

Brent crude oil prices have been broadly stable around \$US55/bbl since the start of December. Prices are expected to rise only gradually.

Downward pressure on industry-wide passenger yields remains, despite increases in key cost components, particularly fuel and, in some markets, labour.

Both passenger and freight demand ended 2016 on a strong note, delivering above-average growth for the year. Load factors also performed strongly in 2016, with the passenger measure registering a record annual outcome.

Premium airfares continue to generally hold up better than those of the economy cabin, helping to support airline financial performance.

The **January/February** report, published at the beginning of March, gave key points as follows.

The latest financial results for Q4 2016 show that the decline in profitability, which began in the third quarter of 2016, continued across most regions in the fourth quarter, albeit from historically high levels. Global airline share prices continued their positive start to 2017 during February, growing by 4.6% and outperforming the wider global equity market, as expectations for airlines profits improve, particularly in the US.

Brent crude oil prices have been broadly stable since December, and traded within a very tight band of \$US55-57/bbl during February. Oil prices are still expected to rise only gradually over the years ahead.

Average passenger yields in US\$ terms continue to fall, but the recent strength of the US\$ may be disguising signs of a stabilization or slowing of this down-trend.

Passenger and freight demand both carried momentum into the New Year. The industry-wide passenger load factor remains stable at a record high, and the freight load factor has continued to recover.

Premium airfares generally held up better than those of the economy cabin in 2016, and premium's share of revenues increased on a number of key routes which has helped to support airline financial performance. However, overall on international flights, premium traffic was 5.2% of the total, down from 5.6% in 2015.

The January **Airline Business Confidence** Index was published in mid January.

When surveyed in early-January for the quarterly business confidence survey, airline CFOs and heads of cargo reported that profitability was unchanged in Q4 2016 compared to that in the same period of 2015.

Industry heads were slightly more optimistic about the outlook for profits over the coming 12 months than they were in October's survey. But set against a more difficult operating backdrop, the latest survey results continue to indicate that momentum in the profitability cycle has weakened.

The responses on the demand side were broadly consistent with the pick-up in passenger volumes towards the end of last year, as well as the stronger-than-expected 2016 peak season for air freight. Participants remained very positive about the outlook for passenger (especially) and cargo demand over the 12 months ahead.

31% of respondents reported an annual increase in operating costs in Q4 2016 (the highest proportion since July 2014). With a rebalancing in the oil market slowly taking place, and some signs of emerging labour cost pressures, the forward-looking weighted-average score remained above the 50-mark for just the second time in the past 10 surveys, pointing to a further increase in input costs over the coming year.

Nearly two-thirds of respondents reported lower passenger yields in Q4 2016 compared to the same period in 2015, underlining the challenging profitability environment. On the freight side, ongoing concerns about future capacity growth, particularly related to belly-hold capacity from additions to the passenger fleet, mean that respondents remain negative on the prospects for freight yield over the coming 12 months.

Airline employment activity increased for the eighth consecutive quarter in Q4 2016. Half of the respondents expect to keep employment levels unchanged at current levels over the next 12 months.

Apologies for the delay in publication of these.

Recent US airline quarterly results

Regular readers will know that I keep a spreadsheet of results of a selection of airlines. These are used to produce a 4-quarter moving average. Two major US airlines, Delta and United, have recently reported Q1 2017 figures.

Delta shows a continuing trend of declining total revenue (\$33,703m for the latest 4 quarters, compared with \$34,621m to Q1, 2016) against growing revenue passenger miles (213,325m, compared with 211,129m in the 4 quarters to Q1, 2016). This implies a steadily reducing yield. Available seat miles are also up, at 251,593m compared with 248,312m.

United, whose figures were released just after their recent appalling customer service issue, shows revenue growing after a dip. In the four quarters to Q1, 2016 it was \$32,355m: this dropped to \$31,425m in Q3, 2016 and is now up at \$31,641m. RPMs have shown steady growth – 187,508m to Q1, 2017 compared with 183,838m to Q1, 2016. ASMs have shown a similar growth – from 221,029m to 226,581m. United, unlike Delta, publish passenger numbers: these have grown from 97.226m (to Q1, 2016) to 102.555m – the second consecutive quarter in which over 100m passengers were carried

US airline carryings 2016

From FAA via Business Traveller

Southwest Airlines was the US carrier transporting the most passengers in 2016, according to the Department of Transportation (DOT). A total of more than 151.7m travelers flew on Southwest last year, up from 144.6m in 2016. The 5% increase in Southwest's passenger volume brought the airline ahead of American Airlines, whose enplanements fell 1.6% between 2015 and 2016, to 144.2m. The American Airlines data included flights on US Airways, which has now been fully integrated into American's operations.

Delta Air Lines saw a 3.2% increase to remain in the number three slot in passenger volume in 2016, with 143.1m enplanements. United Airlines' passenger volume rose 5% year-over-year to exceed 100m enplanements for the first time, allowing the airline to keep its hold on the fourth spot.

Other US airlines carried significantly fewer passengers than the top four carriers. JetBlue, for example, saw a 9% increase in enplanements but still only carried 38.2m passengers. SkyWest carried 31.2m passengers, followed by Alaska Airlines (24.4m), ExpressJet (22.2m), Spirit (21m), and Frontier (14.8m). Of these, Spirit saw the biggest jump in passenger volume (19.1%), while ExpressJet carried 14.7% fewer passengers in 2016 than 2015.

Road

Unsustainable? The growth of app-based ride services and traffic, travel and the future of New York City

Schaller Consulting 27/2/17

This report looks at Transportation Network Companies (TNCs) like Uber and Lyft in New York City. It uses direct measurement of trip volumes and vehicle miles from in-vehicle systems and vehicle inspections, and covers TNCs, taxis and all other for-hire vehicles. It looks at the years 2013 – 2016, and looks at trips, passengers and mileage and the impact on transit services.

In New York there are rich sources of data. Taxis and TNCs keep electronic trip logs: those for 28 days in June of 2013, 2014 and 2015 were used (so that each contained 20 weekdays and 8 weekend days). The Taxi and Limousine Commission (TLC) has weekly summaries of numbers of vehicles dispatched for for-hire vehicles; and monthly trip and fare revenue data for taxis. Lists of licensed for-hire vehicles are available. For-hire vehicles are inspected periodically and odometer readings recorded: these were obtained by using a Freedom of Information request. The New York Metropolitan Transit Authority (MTA) gave bus and subway ridership data, and the New York City Department of Transportation gave bike ridership for 2015 and 2016. Ferry ridership came from the Mayor's office, and data on personal travel by all modes came from a household travel survey in 2010-11.

The report gives details of metrics used. Mileage, for example, includes cruising and empty mileage, as well as personal use by TNC drivers. Yellow cabs can pick up anywhere: green cabs only in specific areas of the city. Black cars – limos - serve pre-arranged rides.

In February 2017, there were 13,587 yellow cabs, 50,381 TNC vehicles, 11,385 black cars, 4,111 luxury limos, 5,446 Green cabs and 16,441 other for hire cars.

The first finding concerns ridership. TNC ridership doubled in the last 3 years to 133m passengers (80m trips), 87% of the yellow cab ridership. It doubled each year from 2014 to 2016. Since mid 2016, TNC ridership has increased by 7m passengers a month. Yellow cab ridership has gone down by 2m a month compared with the same months in 2015.

In autumn 2016, Uber had 72% of the TNC market (down from 91% in Spring 2015) and Lyft 12%: there are 3 smaller companies which appear to have been taking traffic from Uber.

Monthly passenger numbers for yellow cabs were 21.33m in Spring 2015, 19.28m in autumn 2015 and 17.19m in autumn 2016: TNCs saw 4.26m, 8.01m and 15.04m in the same periods.

The second finding concerns miles driven. TNCs drove a total of 1.19bn miles in 2016: this growth increased miles driven in New York City by 600m between 2013 and 2016. Over those years, yellow cab mileage declined by 186m and that for black car and other cab services by 51m. TNC mileage increased by 1.14bn, so the for-hire industry increased its mileage by 901m to 3.17bn miles in 2016. That is 19% of total vehicle miles in New York City, up from 14% in 2013. It is estimated that 56m miles replaced personal car use.

4% of total trips at LaGuardia and JFK airports in June 2016 were by TNCs. Taxi and TNC trips to airports by all for-hire vehicles increased from 525,000 in June 2013 to 641,000 in June 2014 and 726,000 in June 2015.

TNC trips are on average longer than taxi trips (5.4 miles compared with 3.0 miles): longer distance trips, normally taken by subway, appear to be suffering from the use of TNCs. Between 2012 and 2013, subway ridership increased by over 50m and bus ridership by 15m: ride service ridership declined slightly. Between 2013 and 2014, subway ridership grew by just over 40m: bus declined by 10m and ride services increased by 8m. The trend continued: between 2014 and 2015, subway ridership grew by 10m, bus ridership went down 15m and ride services ridership increased by 17m. Between 2015 and 2016, subway ridership went down, by 6m: bus ridership was down 12m. Ride services ridership was up by 30m. This is the first time for years that subway ridership has declined in the city.

Within Manhattan, TNCs increased vehicle mileage by 7% (352m miles). A 2008 study showed that congestion pricing would have reduced VMT by 6% and increased average speeds by 7%: stop-go traffic would have gone down 20%-30%. So the 7% increase from TNCs can be expected to cause an equal and opposite change.

Historically, New York City has kept taxi fares at 4.5 times subway fares to discourage car use in Manhattan: it has also limited parking for private cars. TNC pricing is weakening these policies with implications for congestion and pollution.

Finally, the author cites TNC research in other cities. A study in San Francisco revealed that 33% of TNC users would have used the subway if the TNC had not been available, and another in Denver said that 28% would have used transit or car-pooled.

Travel time measures for the strategic road network, England: 2016

This statistical release from the DfT came out in late February together with a similar one dealing with local A roads.

The average delay on the **Strategic Road Network** (SRN) in England in 2016 was estimated at 9.0 seconds/vehicle mile, compared to free flow. Free flow is currently defined as the speed limit on the section of road being measured. Compared to a free flow state, motorists need to allow 69% more time to ensure an on-time arrival.

Average speed was 59.3 mile/h.

Average delay is presented across all 24 hours of the day, and attempts to measure relative congestion.

For **local class A roads**, average delay is estimated at 45.9 seconds/vehicle mile. This is 2.8% up on 2015. Average speed in 2016 was 25.2 mile/h, 1.2% down on 2015 – continuing the decrease seen since the series started in 2014.

Average delay has gone up over both urban and rural local A roads. On urban roads, average delay was estimated at 75.5 seconds/vehicle mile (up 2.1% on 2015): on rural roads, it was 20.6 seconds (up 4.3%).

Between 2014 and 2016, average delay compared to free flow has increased by 8.6%: traffic increased by 3.8%. Over the same period, average speeds have decreased by 3.8%.

So speed is down by the same amount as traffic volume is up – and delay is up much more.

Shared bikes are safer

From vox.com via The Source

Here's a remarkable fact: Not a single person has died using bike share in the United States.

Bike sharing has seen explosive growth since 2007, with systems [in at least 94 cities](#) and more than 35 million trips taken. There have been some serious injuries, yes. But — knock on wood — we've seen [zero US deaths](#) from bike sharing so far. Contrast this with the overall estimated cycling fatality rate of [21 deaths/100 million trips](#).

And that's not necessarily a fluke: Researchers have found that bike-share riders tend to get into far fewer crashes than other cyclists. A [new report](#) from the Mineta Transportation Institute sifts through data from bike-share systems in Washington DC, San Francisco, and Minneapolis. They found that bike-share bikes had lower collision and injury rates than personal bikes in all three cities. In DC, the collision rate for bike share was 35% lower.

Intrigued by this, the report's authors interviewed both riders and a variety of experts from transportation departments across the country. They came to a few broad conclusions for why riding a bike-share bike seemed to be consistently safer than riding a personal bike:

1) The design of the bike matters a lot. Bikes in public bike-sharing systems tend to be heavier and feature wider tires, making them sturdier and better able to deal with bumpy roads and potholes (a leading cause of cyclist-only crashes). The bikes also have fewer gears and are incredibly clunky, making it hard for riders to go very fast. And they feature drum brakes, which work better when it rains.

On top of that, the bikes tend to be painted with bright colours and feature flashing lights, making it easier for cars to see the riders. And the seat forces the rider to stay upright — again, improving visibility.

2) Bike-share trips usually take place in denser, slower-moving urban areas. Bike-share stations are disproportionately concentrated in downtowns with lower average road speeds and lots of pedestrians — that is, places where drivers tend to be more alert. This matters: the authors argue that car-bike collisions become much more likely when cars are going faster than 30 miles/h. And driver inattention is a common factor in crashes.

3) Bike-share riders are less experienced — but that's not always a bad thing. "A few experts said that bikesharing tended to attract people who may be new riders to cycling or infrequent riders," the report says. "These experts said that users

who were less experienced were more apt to be cautious, defensive riders and be risk-averse." (Not everyone agreed with this, though. Other experts thought that the inexperience of riders could sometimes be a hazard.)

4) Bike sharing is safer despite lower rates of helmet use. One thing we know is that bike-share riders use helmets **at a far lower rate** than regular cyclists. But that doesn't seem to make the bike-share bikes more crash-prone. Who knows? It might even help — people **have argued** about this for a long time. One hypothesis is that drivers behave *more* carefully around cyclists who aren't wearing helmets.

(That said, the authors do warn that there have been instances of serious, non-fatal crashes involving bike-share riders — including head and spinal injuries. And they point out that helmets help in these cases: "Helmets, like seatbelts in cars, mitigate the severity of injuries when a collision does occur, but they do not prevent the collision from occurring.")

5) It's not clear that bike sharing creates "safety in numbers." This was one surprising finding. Some transportation experts **have long suggested** there's a safety-in-numbers effect in biking — the more cyclists there are on the road, the more cautious drivers are. But the authors of the MTI report couldn't find much evidence for this in the data. In both San Francisco and Washington DC, overall collisions are pretty tightly correlated with the number of cyclists on the road. Maybe we haven't hit the tipping point just yet.

In any case, the **full report** is interesting reading. Among other things, there's a discussion of the pros and cons of building protected bike lanes and whether bike sharing has driven an increase in bike commuting. (It's a bit tough to say, since bicycle commuting seemed to be on the rise in Washington DC, San Francisco and Minneapolis *before* bike-sharing systems were widely available.)

*Note: I should also mention that there has been one documented bike-share death in Mexico and two in Canada. But even those rates, the report notes, seem to be much lower than the estimated rates for cycling more broadly.

Go deeper

Thanks to **Adam Russell of Mobility Lab** for first highlighting the study.

- One common criticism of bike-share systems is that they mostly benefit wealthier white urbanites. It's a real issue. But here's why **that's been hard to change**.
- Should bikes and cars share the same road — **and the same rules**?
- A few years ago, Joseph Stromberg **made the case** that cities shouldn't force cyclists to wear helmets — on the grounds that it doesn't improve public safety.