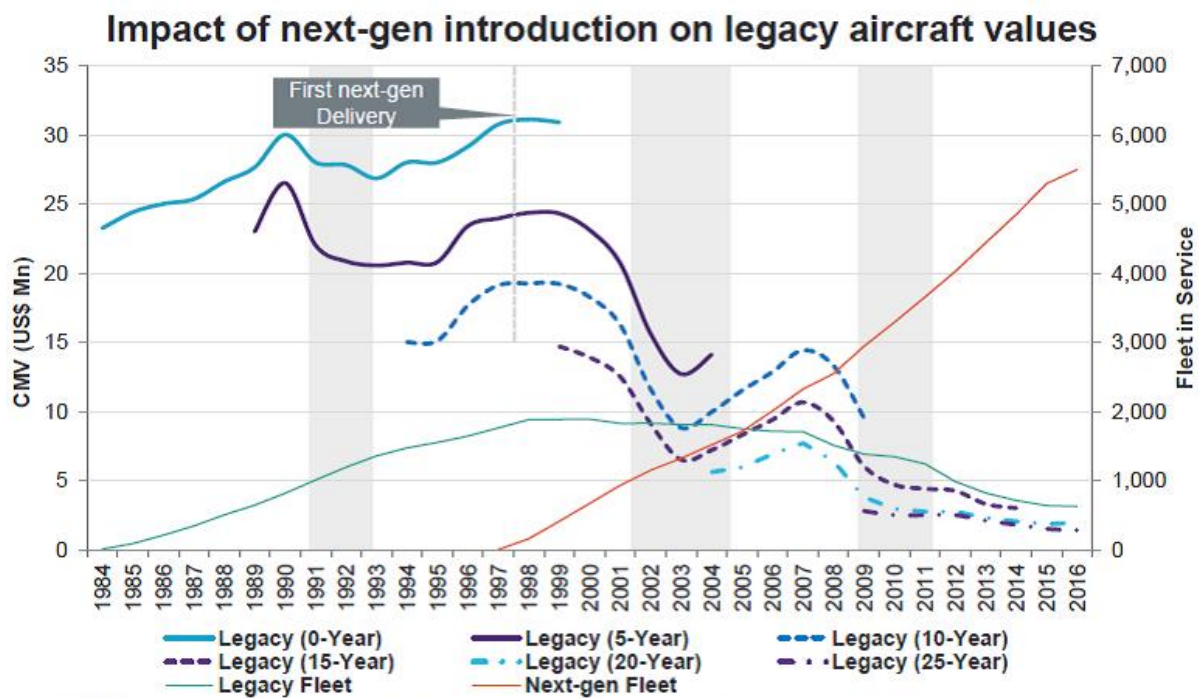


The Transport Economist

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Contents		Pages
Reports of meetings		
Rail infrastructure tariffs to enable private investment – the case of Mongolia	<i>Jeremy Drew</i>	1-15
Wider Economic Impacts Guidance Update	<i>Chris Campbell</i>	16-26
Appraising Aircraft Values & Valuations	<i>Rob Morris</i>	27-37
Review		38-41

TEG Committee 2016-2017

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Rail infrastructure tariffs to enable private investment – the case of Mongolia

Jeremy Drew, Drew Management Consultants

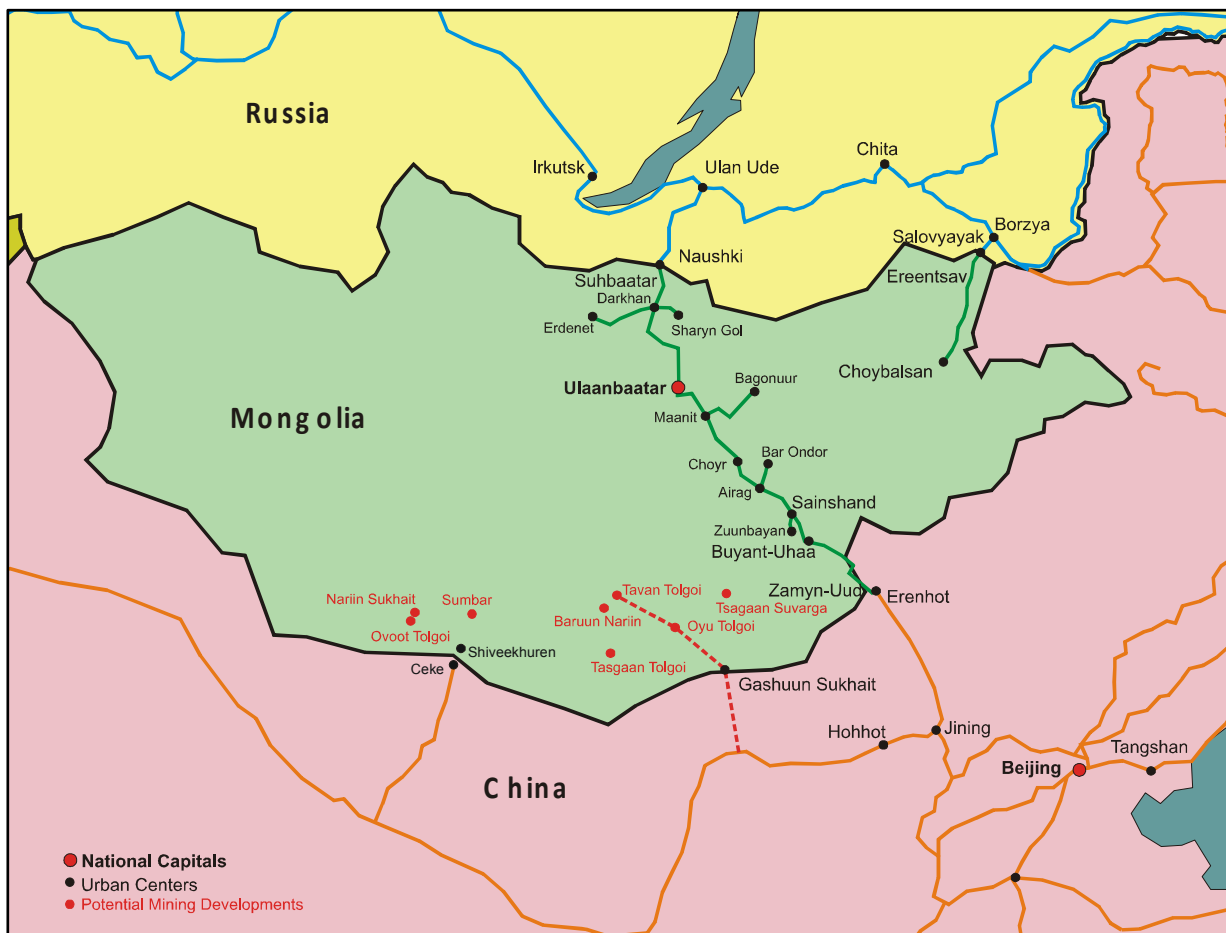
Arup

28 September 2016

Introduction

Jeremy explained that he carried out the work in 2011 for the Asian Development Bank (ADB) and the Railway Authority of Mongolia (RAM). He worked with a team of Mongolian experts and Russell Pittman from the US Department of Justice, who has worked extensively with the Russian model of railways. A key aim was to develop a system of charging for rail infrastructure that would enable private sector development.

Figure 1: Mongolia's geography and railways



Mongolia and its railways

Mongolia is landlocked and borders only China, its main trading partner, and Russia. Although six times the size of the UK, it consists mainly of desert/steppe, and has a population of only 3.1 million, half of them in capital Ulaanbaatar. Its economy has been fast-growing, driven mainly by foreign direct investment (FDI) in minerals, at least until prices fell recently.

The rail network extends to around 1800 kilometres of broad (Russian) gauge lines, built in the 1950s by the Soviets when Mongolia was linked to but not part of the USSR. Construction involved winding curves to minimise earthworks on the gently undulating steppe, as shown in Figure 2.

Figure 2: low cost railway construction



The network is dominated by an 1100-kilometre line, from Suhbaatar on the Russian border to Zamyn-Uud on the Chinese border, but there are also several branch lines. Rail share of freight tonne-kilometres is around 85%.

By 2010 there was a plan for new railways, shown in Figure 3. If completed, the proposals would double the length of the network and increased the capacity on the main line, but the plans have since been substantially revised.

The speaker said that construction has only begun on two lines:

- From the Chinese border at Gashuun Sukhait to Tavantolgoi (red in Figure 3), a line to export coal to China
- From Erdenet west to Ovoot Coking Coal Project and on to the Russian Border at Arts Suuri (not shown), providing a western route from Ulaanbaatar

Figure 3: 2010 plan for Mongolia's railway network



The main railway organisations

There are three main railway organisations.

Ulaanbaatar Tumor Zam (UBTZ):

- Built under the USSR, 50% owned by the Mongolian State and Russian Railways (RZD)
- Management positions shared with RZD and uses mainly Russian suppliers, reflecting history and ownership
- Vertically-integrated and owns most of the existing lines
- Freight is around 50% domestic and 25% export
- Passengers are only carried where lines exist for freight: there is no investment in passengers

Mongolian Railways (MTZ):

- State-owned company to develop/own new infrastructure
- Created on the assumption that agencies would not lend to RZD, but it now appears that they are doing so

BTEG:

- Private iron ore company
- Built 85 kilometres of railway and owns 3,000 wagons (more than UBTZ)
- As yet has no third party users, but uses UBTZ infrastructure

Policy for rail

The 2010 State Policy on Railway Transport intended a ten-fold increase on 2010 exports - to 50 million tonnes, in coal, copper, tungsten, zinc and fluoride - but no date was given. It envisaged that new lines would be built to accommodate the higher axle loads required for coal and minerals (100-tonne trucks are now being used to export coal 250 kilometres from Tavantolgoi to the Chinese border). Rail is cheaper and less environmentally damaging, and hence the private sector was supportive.

The government expectation was that new lines would be either majority state-owned or, more likely, under concessions, with ownership reverting to the state at concession end. Under the Railway Transportation law, infrastructure managers can operate trains themselves but must also provide open access to other transporters. Mining companies building railways, for example, are likely to rely on other mining companies to share use of the line and hence, through tariffs, its costs.

For the potential investor, therefore, a key issue is whether infrastructure tariffs will be high enough to provide an adequate return on investment.

UBTZ's tariffs in 2010

UBTZ does not publish separate infrastructure and operations tariffs. The tariff-setting process is bureaucratic and inflexible, and is not adequately based on either costs or (market) value. Customers find it hard to understand the 18 categories of tariffs, which attempt to differentiate mainly on the basis of social objectives, as summarised in Table 1.

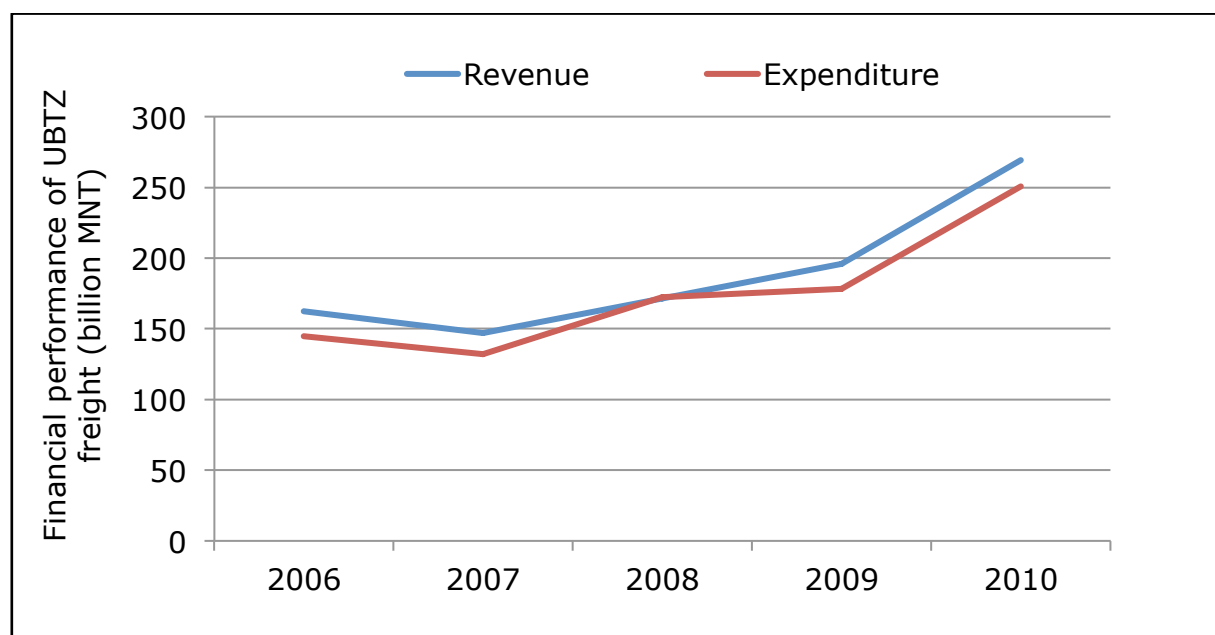
Table 1: UBTZ's 2010 tariffs

Range	Commodities	Proportion of tonnes
High	All transit traffic Oil, iron ore, copper	30%
Medium	Other	30%
Low	Domestic coal	40%

Coal was subsidised for its role in providing domestic heating mainly (via a hot water system) for Ulaanbaatar, which has extremely cold winters. Coal tariffs of around 80 US cents per wagon-kilometre (just over 1 US cent per tonne-kilometre) were low by international standards, and almost certainly below allocated costs, as were both domestic and international passenger tariffs.

Figure 4 shows how, despite higher tariffs for other commodities, UBTZ's freight business had barely broken even over the period 2005-2010.

Figure 4: UBTZ's financial performance



Note: MNT1350 = \$US1

There would have been no scope for attracting private investment in what was barely a breakeven business.

International experience of railway and tariff reform

The study had examined precedents and evidence from a number of other railways:

- **The Russian Federation** allows open access for operators of wagons, but only allows private carriers to haul their own wagons in exceptional circumstances, essentially where RZD was unable to do so.
- **Kazakhstan**, also part of the former USSR, and the second largest railway in the CIS after Russia, allows open access for operators of wagons, and permits private carriers by law, although there are none in practice.
- **The European Union** allows open access for freight services, and has agreed principles for determining tariffs, but railways serve mainly passengers, and freight hauls are generally short.
- **Australia** has open access to federal, state, and some privately-owned infrastructure forming a near-national network.
- **North America** has privately-owned freight railways trading access with each other and with passenger operator Amtrak.

The Russian Federation

In Russia, where rail faces little competition from road, especially east of the Urals, the objectives had been to introduce competition between rail service providers, and to attract private sector investment in rolling stock, allowing RZD to invest in infrastructure and locomotives. Key reforms had been:

- Open access for freight operators' wagons, with traction provided by RZD except on some block trains where there is a shortage of locomotives
- Shippers and operators buy wagons or lease them from specialists

- The RZD operator, which previously owned around one million wagons, was split into subsidiaries which were privatised and now compete with new entrants
- Passenger services are separated but are still loss-making

Russia's tariffs are influenced by the legacy of the USSR:

- Transit tariffs are based on international agreements between railway administrations, including Mongolia
- Import, export and domestic tariffs are regulated by a government agency

Tariffs per tonne per final customer, based largely on meeting social and political objectives, vary with:

- Commodity, wagon type, loaded weight, and other factors such as whether the train is a unit train or has a guard
- Distance, but with a heavy taper (which may be an implied cross-subsidy to remote regions)

The resulting tariff tables are illustrated in Table 2, showing how shipments are separated into three commodity classes, based on transport as a share of total cost, to which further adjustments are applied using Product Indices.

Table 2: illustration of tariffs in the Russian Federation

Class	Transport share of delivered costs	Commodities	Product Index		
			Class	Product	Final
Low value	Over 15%	Coal, iron ore, cement	0.75	0.97	0.73
Medium value	10-15%	Cast iron, grain, crude oil	1.00	1.39	1.39
High value	Under 10%	Copper, steel, paper, beer, cotton	1.74	1.60	2.78

Total regulated tariffs are separated into components for infrastructure, traction and wagons. However, non-infrastructure costs such as stations are allocated to

infrastructure and, when RZD provided wagons, infrastructure tariffs were typically 55% of the total, well above infrastructure's share of costs. The resulting tariffs are so complex that shippers buy software developed to interpret them and calculate tariffs.

Tariffs have since become more flexible, and are mainly limited to infrastructure and traction:

- Tariffs for RZD's infrastructure and traction are still regulated
- Tariffs for wagons, 85% of which are provided by private companies, are unregulated, and determined in final markets, but rail freight rates have generally increased, as the private sector has priced up to fund massive investment in wagons (the original policy objective) and improve service

Reforms have therefore led to additional capacity, through the availability of more and better wagons, and RZD's ability to divert funding to infrastructure and locomotives.

Kazakhstan

Kazakhstan's tariff system is similar to Russia's:

- Transit tariffs are not regulated
- Import, export and domestic tariffs are mostly subject to independent regulation, and split into infrastructure, traction, rolling stock and other commercial
- Container traffic was deregulated in 2015, possibly because KTZ had a low market share and little to lose
- Government has been reluctant to deregulate other tariffs, where KTZ market share exceeds 35%

As in Russia, charges for private wagons are not regulated, and the overall result is a wide variation between commodities, with the lowest tariffs being for commodities such as domestic coal.

The European Union

The EU has adopted common principles for freight (and international passenger) open access and infrastructure

charges. Track access charges, typically with components per kilometre per train, and sometimes per wagon or gross tonne, must cover marginal costs, but may have a mark-up. The net result is wide variations in charges, but all networks require state support to cover fixed costs. In some central European states, however:

- Governments have insufficient money to pay for fixed infrastructure costs, as would be necessary under marginal cost pricing
- Railways have insufficient information on costs or markets

Australia

In Australia, some state-owned railways remain integrated, and others have been separated into infrastructure and operations, but open access now exists on a near-national network of former federal- and state-owned lines.

Infrastructure charges vary between infrastructure managers and routes, but must be negotiated between a marginal cost floor and an average cost ceiling and must be non-discriminatory between operators providing the same service.

North America

North America's railroads are privately-owned and financed and vertically-integrated, but have increasingly needed to offer each other access on negotiated commercial terms based on costs. Mandatory access is only imposed by the regulator in limited circumstances: following mergers which reduce competition; and following a successful complaint about rates.

Conclusions from international review

The Russian and Kazakh approaches are not suitable for Mongolia:

- They were designed for different objectives, particularly to avoid disruption to existing industry
- They are inefficient, as they are poorly related to costs or to ability to pay
- They are complex and difficult to understand

Other regions have tariffs which are based on either variable or total cost, and typically depend on train-kilometres or gross tonne-kilometres or both. Using variable cost means the infrastructure manager needs another source of revenue, which is often not available.

Issues and recommendations

Objectives

Key objectives for infrastructure charges had been:

1. To encourage efficient development of the network and provide for its financing:
 - Cover costs
 - Provide an adequate return on new investments
2. To encourage efficient use of the network:
 - Set the variable part of the tariffs equal to the variable cost of an efficient railway infrastructure company
 - Variable cost should include any costs imposed on other carriers, such as congestion and scarcity
3. To achieve social objectives by maintaining low charges for socially important services – passengers and possibly domestic coal – providing that charges cover incremental or variable costs.

Recommendations

Issue	Comment	Recommendation
Freight tariffs: <ul style="list-style-type: none"> • Average cost? • Marginal cost with mark-up? 	Marginal cost encourages efficient use of the network, but how to recover fixed costs and incentivise private investment, and how to estimate marginal costs, and particularly scarcity costs, and over what timescales?	Base most freight tariffs on average cost to enable full cost recovery. Tariffs in some markets could be based on marginal costs.

Issue	Comment	Recommendation
One- or two-part tariff?	Traffic levels are optimised if variable charge = variable cost, which implies a two-part tariff, but this would be a barrier to small entrants and potentially complex	Use one-part tariff
Should tariffs be based on gross tonne-kilometres, train-kilometres, wagon-kilometres or a combination?	<p>Internationally, generally use:</p> <ul style="list-style-type: none"> • Train-kilometres drive operations planning and scarcity costs • Gross tonne-kilometres drive maintenance and renewal • In practice, there is little difference if trains have similar mass 	<p>Base tariffs on train-kilometres:</p> <p>This is simplest. It provides an incentive to make best use of capacity by running longer and heavier trains.</p>
How should passenger tariffs be determined?	Cross-subsidy is logical for domestic trains on a freight-only network, but not for international trains with many foreign passengers.	Infrastructure tariffs for domestic trains should just cover incremental or variable costs.
Should freight tariffs vary by commodity?	This allows government to pursue social objectives, and charge what the market will bear, but increases complexity and is not a priority while most traffic is minerals.	Tariffs should vary by commodity if justified by costs or market.

Issue	Comment	Recommendation
Should assets be valued at historic or replacement costs?	Replacement costs ensure adequate funds for investment, but are more complex: the US Interstate Commerce Commission rejected this as “impractical, extremely expensive and subject to great differences of opinion regarding value”.	Use historic costs, with indexing for inflation.
Cost of capital	UBTZ’s interest rate on debt is far below inflation, but infrastructure tariffs should be high enough to provide a commercial return on private investment, taking into account investors’ perceptions of risk.	UBTZ’s cost of capital should be set above current inflation. Privately-financed lines have a much higher cost of capital: bank loans in Mongolia are at nearly 30% interest.
Depreciation	UBTZ has made little capital investment in the last 20 years, and the net book value of its assets is small. Basing depreciation on a Regulatory Asset Base (RAB) would provide insufficient funds to replace assets.	For new lines, there should be straight line depreciation over asset life. For UBTZ, investment budget, reviewed for justification by the government, should be used until a realistic RAB can be established.

Other recommendations

In addition, the study had proposed that:

- Tariffs should be higher on new lines than existing ones, if necessary to provide adequate returns on investment.
- Flexibility should be maintained to adjust infrastructure tariffs to changing market conditions and the need to incentivise investment.
- The system should be simple and easy to understand.
- The accounting basis for tariff-setting should be sound.
- Regulatory scrutiny of tariff increases should be made by qualified staff.

Discussion

Stephen Bennett has worked in Mongolia for the World Bank in 2000. He agreed with the need to keep tariffs simple, and noted that in temperatures of -30°C, only the railway moved and provided coal, heat and life. He endorsed Jeremy's views, but referred to The Financial Times of Tuesday 13 September 2016 ("FT Big Read Mongolia"). This set out the parlous state of the Mongolian economy brought about by the collapse in commodity prices and demand for Mongolia's export commodities, which are expensive to transport. Exports of copper ore peaked in 2014 but had since fallen and halved between 2015 and 2016. Government income is 18% below costs, despite drastic budget cuts. Mongolia is forced to borrow to cover the deficit, but "no other country borrows at such high rates as Mongolia": the coupon on recent international bonds was 10.5%. The Mongolian tugrik has fallen dramatically against the dollar, making the task of servicing international debt harder. The situation had worsened dramatically since Jeremy's project, and Stephen considered that both Government and private sector will find it difficult to make a business case for investment in infrastructure in Mongolia in the foreseeable future. **Jeremy** noted the comments but said that the ADB is considering investing.

Hugh Ashton (independent consultant) asked whether all trains in Mongolia are unit trains, and how average costs could be calculated without also projections of traffic. Jeremy said that not all trains are unit trains and confirmed that projections were needed. If, as he suggested, infrastructure access charges

were negotiated as part of concession contracts, provision should be made to adjust tariffs where actual traffic differs from assumptions.

Tim Elliott (independent) asked how wagon owners “did a deal” in Russia and Kazakhstan, and how end-to-end transport worked in the US. **Jeremy** said that wagon owners would compete to move a shipper’s goods, and then contract with RZD/KTZ to provide traction and infrastructure capacity. In North America the railroads had “switching arrangements” with each other to provide for through movements where necessary. **Dick Dunmore** (Steer Davies Gleave) expanded (see also The Transport Economist Volume 41 Number 3) that the US railroads, integrated businesses with both infrastructure and operations, set infrastructure tariffs on an open book basis. Each railway knows “the going rate” and the backstop of an appeal to the regulator is rarely needed.

John Dodgson asked how it was possible to set any tariffs without a clear accounting basis. **Jeremy** said that progress was being made by continual refinement of preliminary estimates. **Gerard Whelan** asked how the transition to the new rates had been managed. **Jeremy** said this was carried out after his involvement.

Jeremy Stickings (formerly of ADB) asked if social objectives are a hindrance to economically efficient tariff-setting. **Jeremy** said that they are likely to be, but that this was the prerogative of the Mongolian government.

Dick Dunmore said that in the 1990s German rail operator DB had, like RZD, gradually introduced more and more tariffs to reflect market realities, with some confusion to customers. He wondered whether high tariffs on certain goods, if not Ramsey pricing, might also be an efficient means of taxation which proxied one or more of value added, consumption, or ability to pay. **Jeremy** said that there might be an element of this, with 25% of revenue being from transit traffic. **Dick** noted that many European air traffic services appeared to weight charges to overflying, rather than terminating, movements. **Jeremy** countered that there can be potential for competition for transit traffic. **Dick** suggested that the Baltic States had exploited their “ransom strip” to charge high tariffs for transit traffic to/from

Russia. **Jeremy** said that RZD now sometimes discriminates against Baltic State ports in the same way, lowering the tariffs to its own ports.

David Spurling (Learning Through Cooperation Ltd) asked about the future of coal, particularly as the Chinese investigate heat pumps. **Jeremy** replied that it was not part of the remit to assess whether coal should or would be exported in the future.

Andrew Evans said that heat pumps are progressively less efficient as the outside temperature falls. **Tim Elliott** suggested that much coal consumed in China was used to power air conditioning in the warm south, rather than as heating fuel in the cold north.

Robin Whittaker had worked on rail tariffs in the UK, where quotations could take three weeks to prepare, which was not competitive with road. How quickly can the Russian railways provide quotations? **Jeremy** replied that the tariff calculators available in commercial software allowed shippers to check tariffs in advance.

Gregory Marchant asked about the mix of commodities in Mongolia. **Jeremy** said that around one-third was coal, followed by iron ore, but copper may grow in importance.

Dick Dunmore asked what happened next: how were the recommendations converted into specific tariffs? **Jeremy** said that UBZT had implemented some changes even before publication of the report.

Gerard Whelan (KPMG) asked about other “parts of the jigsaw” required to help Mongolian railways. **Jeremy** said that it suffered many disadvantages, such as being landlocked between two major customers. Expanding and maximising use of the largely fixed cost rail network would help.

Report by Dick Dunmore

The ADB published the report in 2014 at <https://www.adb.org/publications/mfdrs-rail-infrastructure-tariffs-enabling-private-sector-development-mongolias-railway>

Wider Economic Impacts guidance update

Chris Campbell, Department for Transport

Arup

26 October 2016

Introduction

Chris Campbell introduced himself by saying that he had been an Economic Advisor to the Department of Transport for the last two years. He had been leading the study into Wider Economic Impacts guidance. He noted at the outset that no new methodologies were developed in this study.

Transport Business Case

DfT has a 5-cases approach to scheme appraisal and the areas of interest for the talk are the strategic and economic cases. The Treasury sets out the general principles for value for money. There is continuously ongoing work updating WebTAG guidance.

Context

The context for the study is that there was criticism of WebTAG that guidance was not suitable for 'transformational' schemes which were said to be 'missing impacts'. In response, DfT commissioned a study into Wider Economic Benefits (WEBs), which was led by Professor Tony Venables.

There are three different types of economic impacts including induced investment, employment effects and productivity impacts, and WebTAG captures many of them. However, the study made several recommendations including that:

- appraisals should be context-specific;
- there should be stronger links between strategic and economic cases; and
- land use changes should be assessed in a wider range of projects.

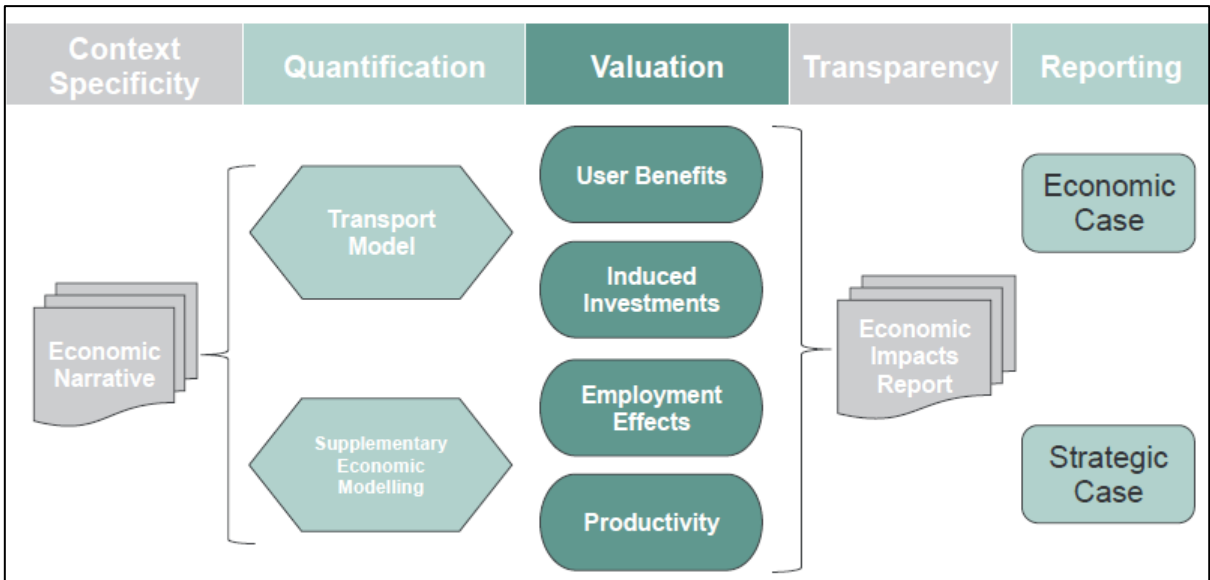
There were debates within DfT about how to respond to this research. They took the approach of investigating different Frameworks for assessing Wider Economic Benefits, rather than developing new methodologies.

New framework

There are three sequential levels in the new framework. Level 1 is user benefits, Level 2 is an ‘adjusted BCR’, and Level 3 requires more assumptions and is essentially a sensitivity test. Transport promoters should begin with Level 1 and then move to Level 2 and 3 if appropriate. Level 3 is focused on transformational schemes, meaning that not all schemes are expected to have them. No business case will be disadvantaged because it doesn’t get to Level 3 analysis: the key is the level of robustness.

DfT has tried to bridge the gap between the economic case and the strategic case. All appraisals should begin with an ‘economic narrative’, and all technical detail should be reported in an Economic Impacts Report (EIR).

Figure 1: The economic narrative and Economic Impacts Report



Context specificity

By encouraging practitioners and scheme promoters to produce an economic narrative, it is hoped that business cases will become more proportionate and focus on the most relevant

impacts. This should also inform the appraisal specification report, that is, what is chosen regarding 'this particular model and this particular method'. Scheme promoters will be expected to use evidence specific to the scheme. The appropriate way to assess these methods is to begin with WebTAG and potentially to use other sources of evidence and methodologies if the scheme promoter can justify using them.

Quantification

No changes have been made to transport modelling guidance, as the existing guidance is sufficient for most transport appraisal.

The new guidance on Supplementary Economic Modelling is 'principle-based', not prescriptive. The rationale behind the guidance is to help practitioners establish analysis, and for assessors to be able to determine their robustness.

These 'non-standard' methods (for example SCGE, LUTI and reduced form models) can be used to inform business cases, but are only expected to be relevant in a minority of cases. These methods may be appropriate in the following circumstances:

- land use change;
- economic impacts not covered in WebTAG;
- context-specific estimates of WebTAG parameters; and
- sub-national economic impacts.

For London, for example, there may be a rationale for using different elasticities for agglomeration where a case exists to do so. London has high density, and productivity gains are non-linear. With the new guidance, a scheme promoter in London would be able to use different elasticities for agglomeration if they had evidence that it was appropriate to do so.

Valuation

Three new units are designed to help practitioners identify market failures and whether these are relevant to their scheme.

Transparency

An Economic Impacts Report (EIR) will inform both strategic and economic cases and be important for assessing the robustness of the analysis. It should outline the economic narrative, methodologies, results, assumptions, uncertainty analysis and the analytical bridge between economic and strategic cases.

Reporting

Only welfare changes should be put into the economic case, but it is recognised that other metrics, such as gross domestic product, gross value added and jobs, are of interest to stakeholders and decision-makers. These values can be reported in the strategic case, but the underlying analysis should be consistent with what is reported in the Economic Case.

Technical changes to Guidance

There was debate within DfT about labour supply and about what should be included within the 'tax wedge', which is currently calculated including corporation tax and individual tax, but in a proposed change to the guidance GDP per worker is used rather than 'wages'. At a later date, the whole methodology may be re-examined.

'Dependent development' guidance has also been updated to ensure that land value uplift does not double-count user benefits. The changes to the guidance mean that commercial developments will be included. There are changes to transport model scenarios and additionality assessments.

In current guidance, all scenarios are constrained to TEMPRO, and dependent development households are included in user benefits calculation, which means that the land value uplift is likely to double-count this. The proposed change means that the benefits to those occupying the dependent development will not be counted twice.

Figure 2: Transport model scenarios

	Without dependent development	With dependent development
Without transport	P	Q
With transport	S	R

Another change is that dependent development is now considered. The 4-step solution is only applicable to 'dependent development':

1. Estimate number of houses/commercial units required to accommodate NTEM forecasts.
2. Estimate those that can be accommodated on all other developable sites, which require no or less significant transport investment.
3. On the basis of 1 and 2, estimate how many dependent houses/commercial units could be accommodated at these alternative sites.
4. The residual is additional.

For example, a retail development would 'create' some new shops, but it is feasible that these could be accommodated on an alternative site. In other words, the dependent development may displace economic activity from other locations. So, if the 'dependent development' was 2,000 square metres and if NTEM forecast is a requirement for 10,000 square meters of retail space, and if all 10,000 square metres can be accommodated on alternative plots for which no transport investment is required, then the 2,000 could take place somewhere else without a transport scheme. Thus the dependent development represents displaced activity.

Summary

In summary, the new guidance has added levels of analysis, introduced an 'economic narrative', supplementary economic modelling, a new unit structure, introduced an Economics Impacts Report, and says that welfare benefits should be in the Economic case while alternative metrics should be in the Strategic case.

Figure 3: The new framework to assess economic impacts

Level of analysis	Improve proportionality and align to Value for Money (VfM) assessment.
Economic narrative	Context specificity.
Supplementary economic modelling	Alternative sources of evidence and modelling techniques.
New unit structure	Focus on impacts and transmission mechanisms.
Economic Impacts Report (EIR)	Transparency of analysis.
Reporting impacts in the Business Case	Strategic case = jobs and GVA. Economic case = welfare impacts associated with jobs and GVA.
Methodological changes	
Labour supply impacts	Slight changes to GDP calculations.
Dependent development	Appropriate for commercial developments. Change to transport model scenarios and consideration of additionality.

Future research

The speaker concluded by summarising further areas of research:

- review literature on agglomeration economies and potential improvements;
- refine employment effects methodologies;
- develop evidence base on additionality;
- appraise packages of investments;
- appraise attractiveness benefits; and
- benchmarks to inform Supplementary Economic Modelling.

The speaker identified three topics for discussion.

Levels of analysis and proportionality

- Practitioners need to assess the scope of the appraisal.
- Consider what reasonable size impacts for that scheme would be.
- There is a challenge to defining 'proportionality', and defining when a scheme is 'transformational'.
- Can there be thresholds regarding the level of analysis? For example, could there be suggestions such as 'if your scheme is of this size, the level of analysis should be 2'.

Guidance on Additionality

- There is limited evidence on the extent of displacement of economic activity.
- DfT default assumption is that everything is 100% displaced. Scheme promoters must make logical arguments and present evidence if they believe there will be additionality impacts.
- Inclusion of additionality factors in guidance would require more evaluation evidence.
- Appraising packages of investment.
- There is an intention among policymakers to have a 'package of interventions' to achieve economic objectives, such as regeneration.

Challenges for appraisal

- It is challenging to attribute the impact of synergies.
- There could also be a challenge in determining the importance of individual components.

Discussion

Peter Gordon (Editor, the Transport Economist) said that transport and economic models can be like black boxes. How do you model economic rebalancing? HS2 will increase the centralisation of the country. How would the modelling reconcile that, and will it consider generalised journey time? **Chris** replied that "models being 'black boxes'" was one of the

things often mentioned in the course of the study. The intention of the new supplementary economic modelling guidance is to try to bring forth transparency of these models.

Eddie Strankalis (independent consultant) noted that the speaker had said that there was 'limited evidence', but Highways England has been doing Post-Opening Project Evaluation (POPE) for 20 years. What about the link between appraisal and evaluation? Surely DfT needs to put in place a mechanism to appraise the impacts of schemes. One would expect study teams to undertake Level 3 analysis of a 'transformational scheme' such as the TransPennine tunnel, but there is no evidence of what the outputs are likely to be. Ask a DCO 'where is the evidence' and you will find there is none. Level 3 analysis will be too complex for most schemes and have no bearing on the BCR. It may give some comfort, but the inspector at a DCO won't be interested. **Chris** said that there is a lot of excitement around supplementary economic models, and DfT is trying to highlight the challenges associated with using them, and to provide guidance on when it would be appropriate to do so. There is no expectation that people will undertake Level 3 analysis: it is for scheme promoters to define and justify the scope of the analysis. DfT has simply identified some principles that practitioners should follow when defining the scope of the analysis.

Robin Morphet (UCL) said that the Green Book said that we will use 'welfare benefits' as the basis of analysis. Are they including producer surplus? What about the economic rent associated with land value uplift? The Green book assumes perfect competition, but everything we do takes place in a spatial context, so there is no perfect competition. How is error accounted for? **Chris** replied that DfT recommends that land value uplift is only used in the specific context of dependent development, which was an initial attempt at trying to capture location benefits. The wider economic impacts guidance is an explicit recognition that there is no perfect competition and an attempt to value these market failures.

Robin also wondered how far the assumption of perfect competition results in error in the analysis. This is something that DfT should look at, because everything assumes imperfect

competition. **Chris** replied that the Green Book starts with perfect competition and moves away from this in the analysis. **Robin** suggested that it is the cost of the scheme that we should be worried about.

Neil Fleming (DfT) said that the new approach is an incredible achievement: those of us who have tried to use the old guidance will know that this is a big move forward. In terms of valuation, there is a significant program of valuation, including a lot of rail work: TfL is looking at Crossrail and Thameslink, and there are other new and improved rail lines. No modelling is perfect, and many models have problems, but some models have a long pedigree of validation. There are also some peripheral models, such as LUTI. But this work is still quite an achievement. **Chris** replied that there was a push for this study to develop new methodologies, but it didn't do that.

Dominic Walley (Connected Economics) agreed that that was an excellent achievement which has considered the various surrounding topics, whether regeneration or dependent developments, with a desire to increase wider economic benefits and to understand more fully what goes into user benefits. However, the discussion had focused on market failure, an important part of which is the narrative of how the user benefits play out and how they support an economic narrative and a strategic case. We come up with a number. But part of the role of these changes to guidance is unpacking that number and linking it with the initial strategic case: this guidance should complete that circle. **Chris** replied that he was not sure when making the slides how much they should say 'wider economic impacts' versus 'economic impacts'. What are user benefits in practice? The key point in Venables' paper is "What are the user benefits in practice?". We need to understand what the user benefits are, and wider economic impacts is a 'branch off the circle'.

John Dodgson (retired) asked about the measurement of agglomeration economies and proportionality. He understood that the guidance has covered agglomeration economics for ten years, and there is welcome emphasis on the need for evaluation of how people have measured these benefits. DfT has ten years of experience with proposals that have measured

agglomeration economics, or ignored them and measured GDP instead. How well has the guidance on measuring agglomeration economics been followed? In new guidance, there are differences between static and dynamic clustering. Agglomeration economics are perhaps 10% of user benefits. But why does dynamic clustering lead to additional benefits of agglomeration benefits? If it's 10% of 10%, then that's not a high proportion: you could measure this by a simulation exercise. **Chris** replied that on the first question ("How much has guidance been followed?") it has been used a lot, particularly now. It's what seen as the big 'in thing' now: for example, earlier today we were talking about the Randstad in The Netherlands. On the second question, dynamic clustering is not a simple addition to static clustering. Dynamic clustering implicitly includes static clustering through the changes in general travel costs. The important point is that it also includes location change. As for the size of the benefits, it is not clear in advance whether they will be bigger or smaller than those derived from static clustering. This is because the location change will affect generalised travel cost, due to changes in traffic flows and congestion, so there is a need to look at changes in generalised travel cost after the move. Have they gone up, and is this because of congestion?

Dominic Walley said that work had been done on static agglomeration in Scotland, on the road up to Perth. The Land Use Model that has been used has indicated that people might have located in Inverness, rather than in the Central belt, so with dynamic clustering, the benefits then went away, because there was a less dense pattern of economic development across Scotland. **Chris** replied that the dynamic clustering is Level 3 analysis which is a sensitivity test. So, rather than being in addition to standard clustering, it's a way of viewing an alternative to the future.

Tim Elliot (Independent Consultant) asked why we always constrain ourselves to TEMPRO? Increases in productivity should mean more trips. Also, LUTI results need to be put back into the transport model: there needs to be an iterative process. **Chris** said that there would ideally be an iterative process, but in practice it is a lot harder. There are problems in that land use models are often built to take outputs from a

transport model, but not vice versa, and that iterative processes don't necessarily lead to convergence. David Simmonds has suggested that it may be sensible to go around the loop twice, and then stop.

Adriana Moreno (KPMG) said that LUTI models have never been validated: why is that? **Chris** said that, when it comes to wider economic impacts, surprisingly few of these models have been put into practice, but now there is more interest in this. The data requirements to build these models are so huge that they often consume all the data we actually have, so there is no data left against which to validate them.

Dick Dunmore (Steer Davies Gleave) noted that, with investment packages, the speaker refers to packages that include items other than transport. Does the governance of a package shift if departments other than DfT are involved? How does that work across and within government? **Chris** said that the only example he knew of this happening in practice is the Local Sustainable Transport Fund (LSTF) where the LEPs were encouraged to bid and LSTF was run as a joint project with BIS, CLG and DfT. But, in this case, all of the transport assessments were assessed individually. **Dick** asked, in this case, how the net benefits of synergies between schemes had been identified or allocated.

Report by Margot Finley

Appraising aircraft values and valuations

Rob Morris, Global Head of Consultancy, Flight Ascend

Arup

23 November 2016

Introduction

Flight Ascend is the advisory and valuation services arm of FlightGlobal (part of Reed Business Information) and experts in providing a complete view of the aviation industry, including flight statistics, fares, traffic and schedules data. Some three-quarters of Flight Ascend's business is in providing aircraft valuations, with the remainder being general aviation consultancy.

Having accurate aircraft valuations is important both for airline operators, in terms of their stockholders and lenders, and for the finance industry, which provides the funding for the aircraft purchases. Some 80% of aircraft are leased, around half of them on Operating Leases and half on Finance Leases.

Aircraft valuations can be expressed in three different ways: current values; forecast values; and lease-encumbered valuations, each of which is discussed separately below.

Current values

Valuations of the current worth of aircraft are assessed under the auspices of two international bodies;

- the International Society of Transport Aircraft Trading (ISTAT); and
- the American Society of Appraisers (ASA).

ISTAT is a non-profit society whose members have common interests in the manufacture, purchase, brokerage, leasing, maintenance and appraisal of transport aircraft. International in structure, it is self-supporting and unaffiliated. Within ISTAT is a core group of professional aircraft appraisers, who work cooperatively for the elevation of the appraisal profession within the world aviation community. It sets definitions, in the

form of a handbook, to be followed by the appraisers and conducts examinations to assess the competence of appraisers in following its approach. Flight Ascend adheres to the ISTAT value definition guidelines.

The ASA has a more formal educational curriculum covering a range of competences in appraising a wider variety of assets.

The market value of an aircraft is by definition the spot trading price in the market conditions at a moment in time, given the current state of supply and demand. Thus market values ought to be based on the evidence from a single aircraft open sale, with no lease attached, between a willing buyer and a willing seller over a reasonable marketing period of up to 12 months. However, fewer than 10 of 1,000 aircraft offered for sale last year were open sales, so this is not a realistic basis for providing valuations in today's market.

Four broad factors influence aircraft values. Starting with the most basic these are:

- Macroeconomic factors: world and local real economic growth, oil prices, inflation, global trade and tourism flows all exert strong influences on passenger and freight demand, and hence the requirement for aircraft.
- Industry-specific factors: these include the capacity of the market, orders and deliveries from manufacturers, the size of the stored fleet, airline profitability and regulatory changes (for example, covering noise and pollution).
- Type-specific factors: is the aircraft wide-bodied or narrow-bodied, and what type of engine does it have? Where is the type of aircraft in the manufacturer's production cycle, and what is its product support? Does it have freighter convertibility?
- Serial-number-specific factors: age, hours in traffic, numbers of landing and take-off cycles, condition and maintenance status, interior configuration (especially for wide-bodied jets) and engine type all contribute to arriving at a valuation for a particular aircraft.

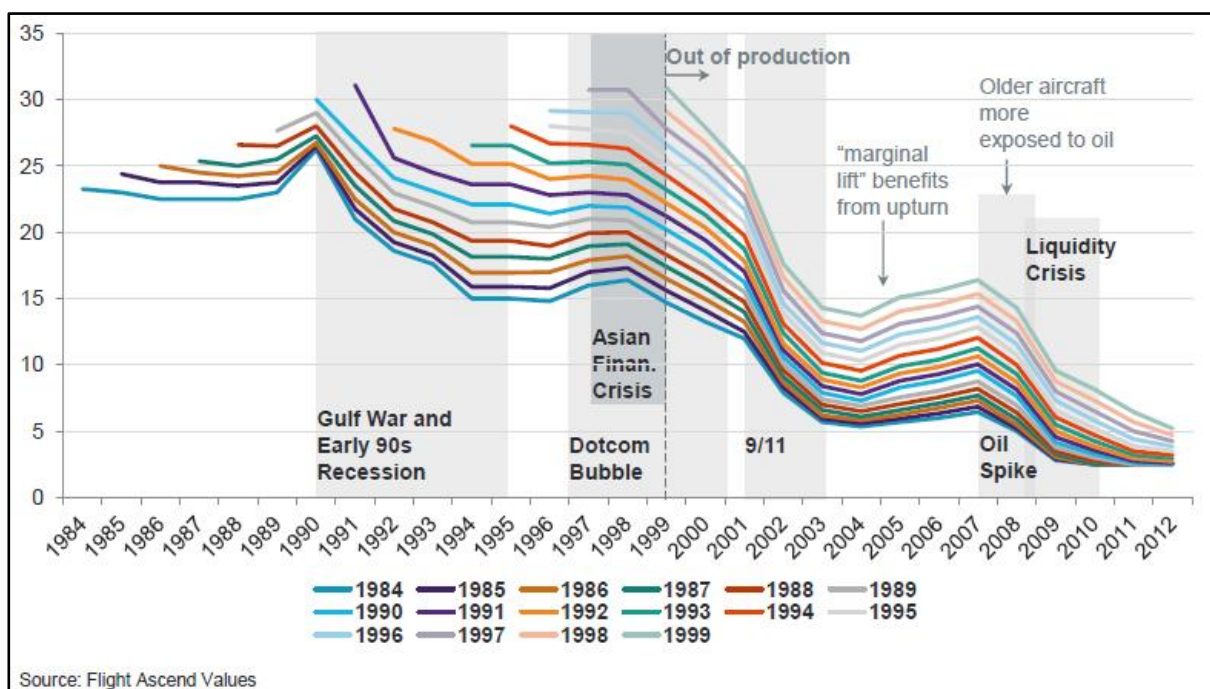
Given the rather opaque market described above, arriving at a current value becomes something of a dark art. Flight Ascend's approach is based on a normalisation and triangulation of data

points drawn from as wide a range of aircraft sales as possible. As one of the four major appraisers in the world, it tries to capture as much information as possible on factors such as price, age, physical condition and financial arrangements for as many sales as it can. To quote a truism, "Value is an opinion, price is a fact", so more data enables better opinions.

According to the ISTAT definition, **Base Value** represents "the long term underlying economic value of an aircraft". This assumes balanced market conditions, where supply equals demand. It is based on historical trends and future expectations, and shows depreciation of value over time. However, Base Value is an artificial construct, since at any one point in time supply and demand are not in balance. Departures from Base Value arise from variations in global and local GDP, oil prices, and the aircraft's position in the production cycle. Base Values are effectively the result of applying a depreciation curve.

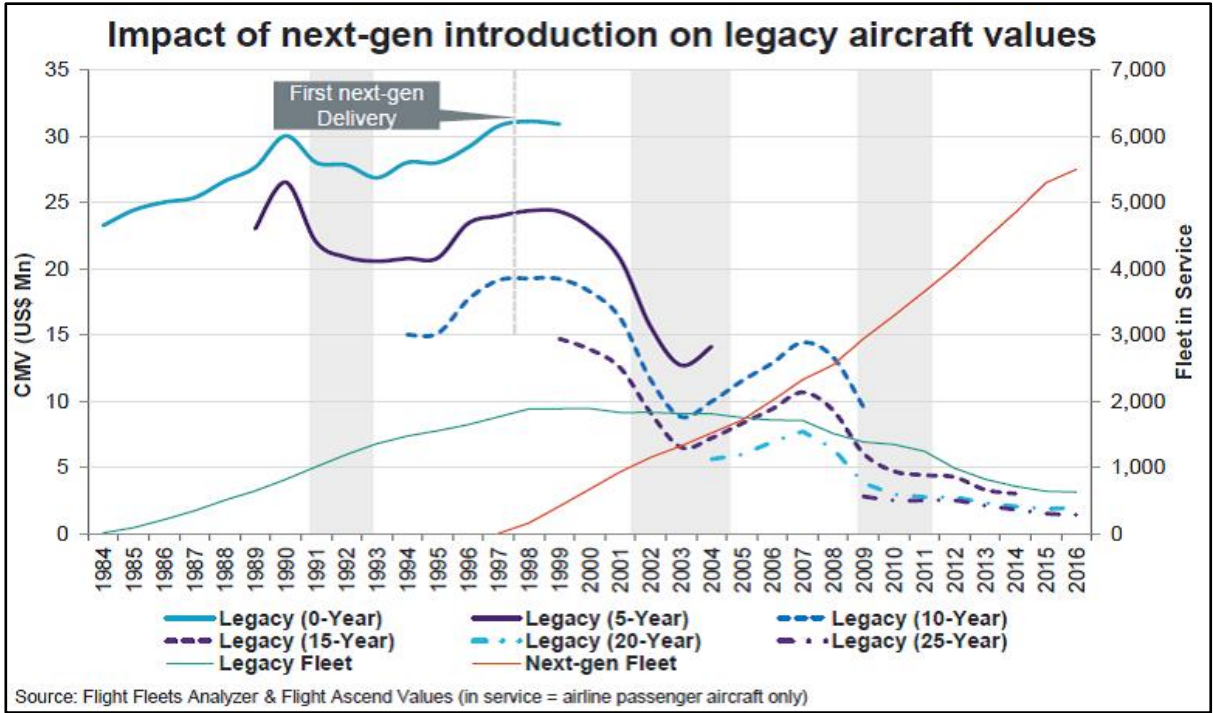
Current Market Value (CMV) ought to move about the more even Base Value curve in relation to supply and demand driven by macroeconomic events. Figure 1 shows how CMVs have changed over time for a common type of short haul single-aisle aircraft, starting with aircraft built in 1984 and then for each subsequent year until production ceased in 1999.

Figure 1: historical Current Market Value (CMV) (US\$ million)



The introduction of new technology also affects the values of legacy types of aircraft. Even for an aircraft with the same nomenclature, such as the Airbus A320, a plane delivered today is a much more efficient aircraft than one delivered in the 1980s. Figure 2 shows how Current Market Value (left-hand scale) varies for aircraft of differing ages and how the fleet sizes (right-hand scale) of the legacy and new fleets have changed over the same timescale.

Figure 2: impact of next generation on legacy CMV



Maintenance also has a profound effect on aircraft valuations and can account for close to 100% of the **Full-Life Value (FLV)** for older aircraft. Full-Life is the aircraft’s maintenance status on first delivery from the manufacturer.

Table 1 below uses examples of A320 aircraft of three separate vintages to show the differential between Full-Life Value (FLV) and Run-Out Value (ROV), where everything on the aircraft needs maintenance.

Table 1: Full-Life Value (FLV) and Run-Out Value (ROV)

Vintage	2014	2004	1994
Differential = (FLV – ROV)/FLV	29%	52%	89%

These percentages effectively represent the maintenance portion of the Full-Life Value of an aircraft. In addition to the lease payments, lessors typically collect a reserve as a protection against the operator not carrying out maintenance to the standard expected by the manufacturer.

The basic building blocks of the appraisal process used to reach an adjusted value are summarised in Table 2.

Table 2: Building blocks in the appraisal process

<----- Desktop valuations ----->			
<----- Online Queries ----->			
Generic 'Half-Life' Value	Specifications	Maintenance Status	Adjusted Value
Current Half-Life Market Value Half-Life Base Value	Maximum Take-Off Weight Engine Variant Airframe Modifications Avionics Certifications Other value	Engines Airframe Status Landing Gears Auxiliary Power Unit Propellers, Rotor Blades Utilisation	Adjusted CMV Adjusted Base Value Value of aircraft with given specification and at given maintenance status

Half-Life valuations are the standard benchmark and are most commonly used for valuing aircraft. Half-Life is when:

- The airframe is half-way between D-checks.
- Engines are half-way between overhauls.
- Limited Life Parts have 50% useful life remaining.
- Landing Gear is half-way between overhauls.
- Auxiliary Power Unit (APU) is half-way between overhauls.

However some circumstances require the Full-Life Value to be used, such as when:

- the aircraft is a new delivery; or
- the aircraft is in Full-Life condition; or
- the loan is for a leasing company against an aircraft with Full-Life conditions.

Similarly, an Adjusted Value is used in situations where:

- the lessor is not collecting maintenance reserves; or
- the aircraft has been repossessed and the actual maintenance condition is known; or
- the aircraft is up for sale with its given maintenance condition.

Forecast values

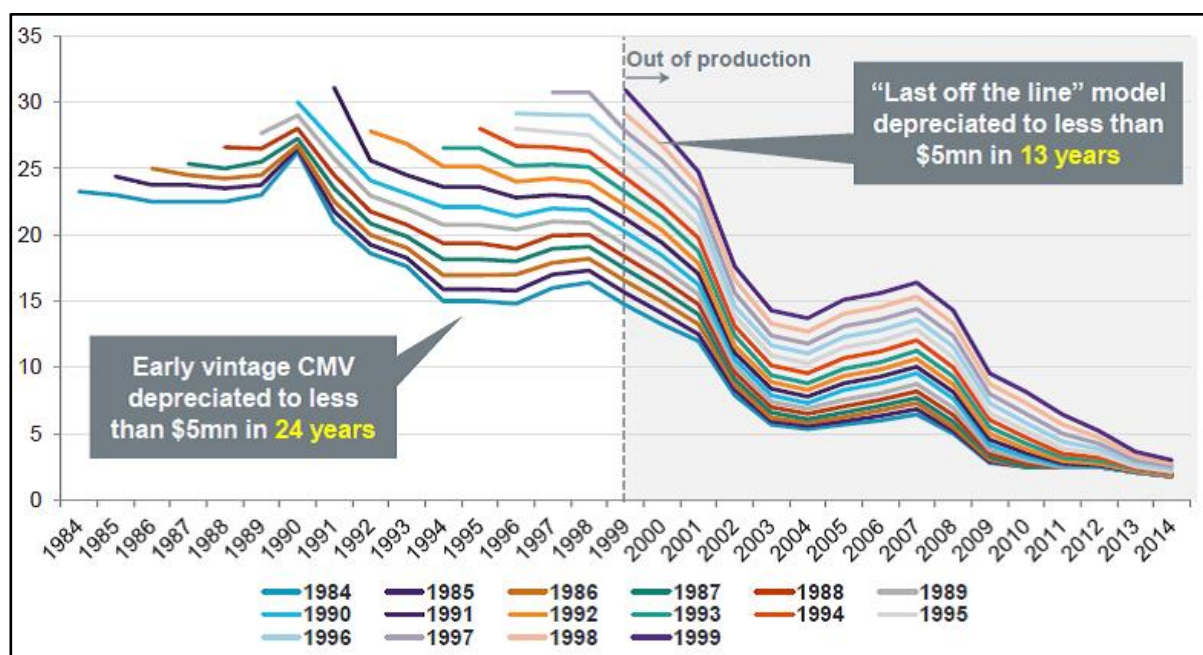
Assessment of Forecast values is founded on historical data and forward looking parameters. The historical Market Value trends are adjusted for inflation and fluctuations in the market to generate a generic depreciation curve. Forward-looking qualitative and quantitative assessments are then made of various parameters including: future fleet size and distribution; secondary markets; the aircraft's place in the production cycle; and likely technological changes.

Key factors which can affect the gradient of the generic curve of Base Value against future aircraft age are:

- fleet (size, operator distribution, geographic distribution, lessor penetration);
- aircraft family concept;
- technology waves (more frequent in wide-bodied aircraft);
- flexibility;
- freighter convertibility;
- engine choice;
- secondary market; and
- position in the production cycle.

Figure 3 illustrates how one of these factors, position in the production cycle, can significantly affect depreciation.

Figure 3: Historical Current Market Value (CMV) (US\$ million)



Source: Flight Ascend Values

Base Values are assessed in January and July each year, with significant reviews roughly every five years. These reviews help check the validity of the original assumptions underlying Forecast Values and the performance of Market Values over the intervening period. Exceptional circumstances can trigger a Base Value review at other times.

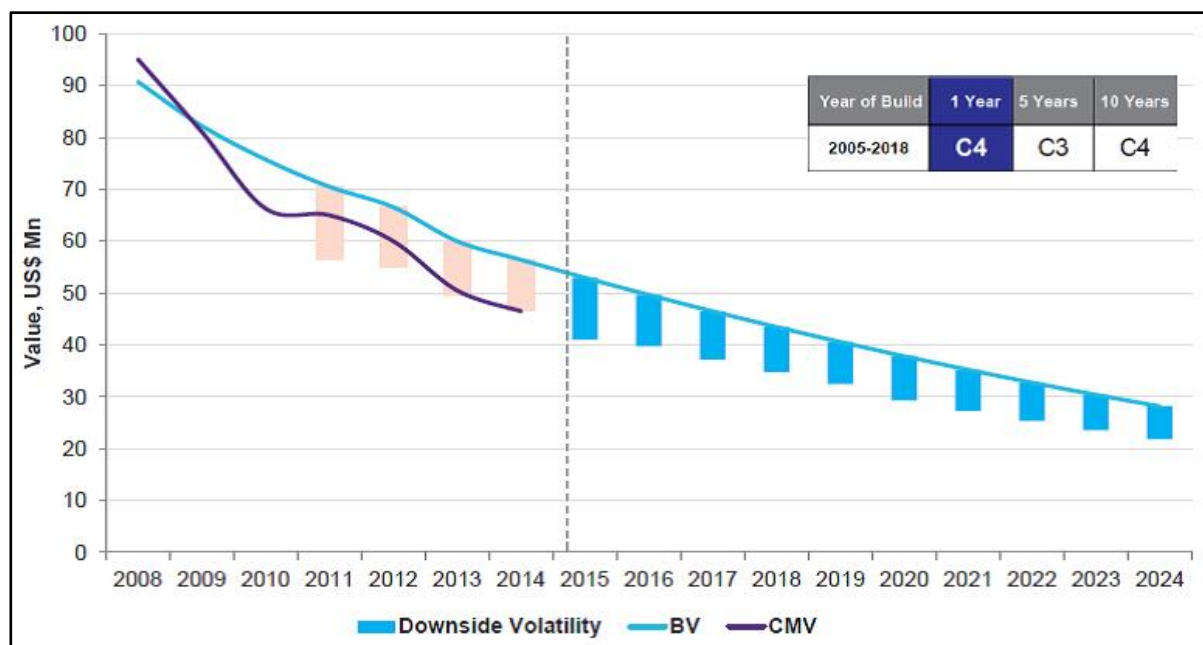
Soft Market Value (SMV) reflects a 'recession' scenario at the bottom of the market, in which the world's principal traffic generating regions are in the midst of a recession or a period of economic stagnation, with airlines experiencing low growth or even reductions in traffic, and supply outstripping demand. SMV is calculated as a percentage reduction on the Base Value, on an aircraft type-specific basis (single-aisle, wide-body, and so on). While Market Values are current aircraft values based on transactions, and are usually used for assessing transactions and value reporting, SMVs are forward-looking and are usually used for loan purposes and downside projections. SMVs do not have a statistical analytic basis.

Aircraft Ratings are an alternative method of estimating downside risk, based on a more sophisticated statistical

analysis. They depend on aircraft type, engine selection, aircraft age and the forecast horizon. There is historical data on the Market Value to Base Value (MV/BV) ratio for all Maximum Take-Off Weight (MTOW) and engine combinations for each aircraft type. Quarterly data from 2001 onwards is filtered to give data points where MV/BV is less than 1, from which are then calculated downside averages and volatility. The rating is based on values within two standard deviations below the downside average, to provide a 95% confidence level. The rating is expressed by reference to two scales:

- Base Value Depreciation from A (<7.99%) to F (>12.0%); and
- Implied Volatility ranges from 1 (=15%) to 9 (=35%).

Figure 4: 2014 example of the ratings downside envelope



Source: Flight Ascend Values and Ratings, 2008 build A330-200 (PW), assuming 2% future inflation

Lease Encumbered Valuations

The increasing use of Lease Encumbered Values (LEVs) is an indication of how the aviation industry is changing. Today the majority of aircraft are traded with a lease attached. LEVs are the sum of the Discounted Present Values of the Monthly or Quarterly Rentals, plus the Residual Value of the aircraft and

the Maintenance Status at the end of the lease. Key drivers for the various components are:

Rentals:

- Remaining term of the lease
- Rentals
- Lessee's creditworthiness
- Risk-free cost of capital

Aircraft Residual Value:

- Age at lease end
- Engine choice and other specifications
- Fleet size and distribution
- Expected OEM product support
- Stage in production cycle

Maintenance:

- Contractually agreed (rather than current) status
- Compensation payments
- Maintenance reserves

The discount rate used is determined by the level of risk involved. LEVs are typically higher than Base Values.

Discussion

The following queries and issues were raised during the presentation.

Q. Are values adjusted for the potential behaviour of aircraft manufacturers, such as flooding the market with a particular type of aircraft? **A.** Yes. The A380 is such a niche aircraft that it is difficult to assess its second-hand value.

Q. How can the Base Value be below the Forecast Market Value? **A.** External events can affect the attractiveness of particular types of aircraft. Historically this has happened in the case of turboprop aircraft, which sometimes becoming favoured over conventional regional jets.

Q. Is it correct that the delivery price of aircraft is significantly different from list prices, and why is this so? **A.** Discounts are typically around 50% for commercial jets, with smaller discounts for regional jets and even smaller discounts for turboprop aircraft. Manufacturers use list prices to determine the levels of deposits and stage payments in their contracts. Despite Boeing and Airbus having an effective duopoly, each competes severely to gain every potential order to gain strategic fleet advantage.

Q. Have airlines and/or leasing companies been over-ordering aircraft recently? **A.** Aviation tends to go in boom and bust cycles. There is a current backlog of around 1,400 aircraft orders, but the indications are that the value cycle peaked some 12 months ago. At present some 60% of the fleet have a Market Value below their Base Value.

Q. How does Flight Ascend acquire data, and what are the incentives for the industry to supply data? **A.** Data is available from some public sources, and directly from lessors and airlines. Information is also acquired through long-standing relationships and at conferences. Overall, it has been possible to capture useful data relating to about 15% of transactions.

Q. How long are aircraft leases? **A.** Traditionally, leases used to be for about 5 years. However, longer leases are now becoming more the norm, with 12 years not untypical. These tend to be finance leases rather than operating lease. The type and length of the lease will affect the airline's balance sheet. Lufthansa is the only major western airline today which does not lease aircraft.

Q. Do airlines trade off the higher maintenance and fuel costs of older aircraft against their lower lease costs? **A.** An airline will use older aircraft on routes with low asset utilisation, where maintenance and fuel costs are less of an issue, and will schedule its newer, more expensive, aircraft on its high utilisation routes.

Q. What action can a lessor take if it perceives that an airline may be likely to cease trading or lose its licence? **A.** Lessors allocate a credit rating to each airline, and will sample the status of assets more frequently for those with lower ratings. They will also discuss maintenance and capacity planning with

the lessee, and may offer to take back some aircraft. The main aim is to preserve the value of the lessor's assets.

Q. What proportion of aircraft are bought speculatively by leasing companies, rather than acquired through sale and leaseback arrangements with airlines? **A.** Operating lessors typically acquire around half of their aircraft through speculative orders with the OEMs, which typically accounts for around 20% of the overall order book. They then acquire the other half of their portfolio through purchase and leaseback with airlines, with the majority of these aircraft acquired at delivery from the OEM. Often an airline will arrange sale and leaseback at a higher price than they originally paid the manufacturer, which generates cash for the airline.

Q. How do tax changes affect the market for aircraft leasing? **A.** There was an example recently where the Brazilian Government designated Ireland as a "Tax Haven". This allowed it to tax the lease payments made by airlines in Brazil.

Report by Gregory Marchant

Review

The views expressed are those of the reviewer and should not be attributed to the Transport Economists' Group

Are Trams Socialist: Why Britain Has No Transport Policy

Christian Wolmar

Published by London Publishing Partnership, £9.99

<http://londonpublishingpartnership.co.uk/are-trams-socialist/>

Christian Wolmar is well-known for his popular but thoroughly researched, well-written and highly readable histories of various aspects of UK and world railways, including *Broken Rails* (2001), *The Subterranean Railway* (2004), *Fire and Steam* (2007) and *To the Edge of the World* (2013).

He is not afraid to state his views. "Are Trams Socialist?" is an overtly opinion-packed exposure of Britain's failure to adopt coordinated, multimodal transport policies and to stick to them; a laudable aim, albeit seemingly unachievable in the politically polarised Britain, where transport policies have since at least the turnpike road era been a political football.

The author is at his best when he is being political, like bemoaning the paucity of memorable transport ministers. He singles out Barbara Castle and 'possibly' Alastair Darling. He wonders why 'dear old' Alfred Barnes, Minister of Transport throughout the Atlee Labour government (1945-51), is not better remembered, despite ushering in the Transport Act 1948's comprehensive nationalisation programme.

Its main title notwithstanding, most of the book is not about trams, but about transport across the board. When turnpike roads were toll roads, it was hoped that they would alleviate the underfunding of highways, due to their fragmented management by unwilling and underfunded local councils: sounds familiar, doesn't it? The turnpikes failed to adapt to the needs of heavy steam carriages. What turned out to be a short-

lived canal era, facilitated by funding through joint stock companies, had been intended to provide a long-term solution to the problem of a dire road system. In the longer term the steam carriages decamped to rails, the 'railway century' starting with the opening of the Liverpool and Manchester Railway in 1830. Trams are first mentioned in the context of their being cheaper than railways, and therefore suited to towns too small for suburban railways: so they may have been, but this advantage was lost when even cheaper and much more flexible buses came on the scene.

Just as Wolmar is getting into his stride with this multimodal chronology, we are catapulted into two-and-a-half chapters on roads. Cycling is briefly considered, with cyclists said to have brought about their own demise by lobbying for smoother roads, which paved the way for the car to usurp their short period of ascendancy. Wolmar criticises the slowness of bringing in controls on cars, such as there being no driving test until 1935. There is a fascinating summary of the growth of the motoring lobby, spearheaded by rich aristocrats, the road transport industry, the AA and RAC and oil companies, which prevented nationalisation of the railways for fear that, under the control of the transport ministry, railways would be too powerful and influential. Alfred Barnes is mentioned again, as having been persuaded by the British Road Federation in 1946 to propose a ten-year plan for 800 miles of motorways. We then move through the eras of 'roads and more roads', the once-discredited phenomenon of 'predict and provide' to which politicians have regrettably reverted, and of the love-hate relationship with road building: Twyford Down et al. Wolmar then comes to the beginnings of a rail renaissance, in part a reaction to the excesses of Beeching. This has led to a backlash against (especially, high speed) rail investment, for just the same reasons: environmental degradation affecting, in particular, people who perceive that they will not benefit from the new routes.

Wolmar is excellent at summarising situations succinctly, for example with reference to profitable bus services, the outlawing of cross-subsidy and the growing difficulty local authorities have in funding tendered loss-making services. He is objective in setting out the facts of whole-system franchising as practiced

in London and in many other European countries. The book's title is addressed through lamentation at the failure of John Prescott's suggestion in 2000 that 25 tramways would be built in Britain by 2010. Prescott's enthusiasm was not shared by his cabinet colleagues, who were "terrified of the negative effects of raising the cost of motoring": plus ça change. Phil Goodwin's rejection of road building as a solution to the transport problem is welcomed; the overturning of "most of Prescott's cherished schemes" by Alistair Darling in 2001 condemned, a setback from which Britain's transport policies have yet to recover.

The chapter on technology, where driverless cars and Uber are discussed, is embedded slightly unhappily within Wolmar's mainstream politico-economic theme, to which he returns to consider more thoroughly the notion that we can 'build our way out of trouble'. He berates WebTAG's approach of valuing business travellers' time more highly than that of leisure users, and the principle of summing myriad small time savings to produce acceptable aggregate benefits. He points out that cost benefit analysis is designed to assist in the ranking of alternatives, rather than to show whether or not a scheme is worthwhile per se. Wolmar seems to belong to the school that would rather curtail travel demand than attempt to meet it in the least disruptive way, thus (while purporting to favour 'better public transport') condemning HS2 as a political project that does not stand up to scrutiny as much as he condemns the roads programme. His rationale is policymakers' failure to give sufficient regard to climate change, but he seems to want to have his cake and eat it. Better cycling facilities and local public transport are a different matter from what to do about long distance transport capacity, not alternatives to addressing it.

At the end of the book Wolmar returns to the question in its title. He concludes, with reference to Switzerland, that trams are NOT socialist. The existence of Switzerland's admirable public transport system depends, he writes, on local political control by electorates willing to back it, with many of the most supportive policies originating with the local populace, rather than from experts and elected representatives, despite the fact that the country's "last socialist resident was probably Lenin". Although he identifies solutions and can tell us WHAT we need to do, based on the need for comprehensive and rational

transport policies, Wolmar fails to answer the \$64,000 question: HOW to get Britain to that position?

This is a thought-provoking and worthwhile book, which contains many useful insights and demonstrates the breadth of the author's knowledge and understanding, albeit sometimes influenced by his desire to raise personal hobbyhorses. Transport economists will find it of particular value for its historical insights and for its fearless approach to sacred cows.

Review by Martin Higginson

In Memoriam

We regret to report the death on 8 December of Derek Done of Marlow, who was for many years a member of the TEG, in his consultancy role as "Derek Done Associates". He also served for a period as Mayor of his home town.

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The Transport Economists' Group, formed in 1973, provides a forum for people involved in transport economics to meet regularly and discuss matters of mutual interest. Membership is open to economists working in transport and others whose work is connected with transport economics.

The aim of the Group is to improve the quality of transport management, planning and decision-making by promoting lectures, discussions and publications related to the economics of transport and of the environment within which the industry functions.

Meetings, held at Arup's Central London HQ at 13 Fitzroy Street from September to June (except December), consist of short papers presented by speakers, drawn from both within the Group's membership and elsewhere, followed by discussion.

The Group's Journal, "The Transport Economist", is published three times a year reporting on meetings and other activities of the Group. It reviews recent publications of interest and contains papers or short articles from members. The Editor welcomes contributions for inclusion in the journal, and can be contacted at petersgordon@blueyonder.co.uk.

The current membership of over 150 covers a wide range of transport modes and types of organisation. Members are drawn from transport operators, consultants, universities, local and central government and manufacturing industry. All members are provided with a full membership list, updated annually, which serves as a useful source of contacts within the profession. Applications from people in all sectors are welcome.

Applications for membership should be made on a form which can be downloaded from the Group's website at www.transecongroup.org.

Contents		Pages
Reports of meetings		
Rail infrastructure tariffs to enable private investment – the case of Mongolia	<i>Jeremy Drew</i>	1-15
Wider Economic Impacts Guidance Update	<i>Chris Campbell</i>	16-26
Appraising Aircraft Values & Valuations	<i>Rob Morris</i>	27-37
Review		38-41

TEG Committee 2016-2017

Details of meetings are provided on our website at
<http://www.transecongroup.org/meetings.htm>

