Thinking Outside the Box
2021 Thought Pieces

The Institute of Transport and Logistics Studies (ITLS) at the University of Sydney Business School in 2015 started a commentary series, adding it to its portfolio of engagement with the broader community of interests in the space of Infrastructure, Transport, Logistics and Supply Chain Management.

While academic publications and reports are a very important outlet for high quality research including debates on themes with a rich policy and strategic value beyond theory, methods and evidence, there is room for a series of short pungent commentaries on themes that are of broad community interest. These are short pieces so they can be digested through the many social media platforms and focus on topics of currency that are also likely to be challenging and controversial – hence the titling of the series 'Thinking Outside the Box'. It has all the elements of critical thinking and the 'challenge of change'.

Each piece is published monthly since April 2015, and this collection covers the 2021 contributions together in one monograph. We hope it will be useful to researchers, consultants, government and industry agencies and associations as well as in the classroom for debate and discussion.

David A. Hensher
Founding Director, ITLS

Thinking outside the Box Series

Read the latest from our world-leading academics and researchers. Opinion pieces are available monthly at: https://www.sydney.edu.au/business/news-and-events/news/institute-of-transport-and-logistics-studies/thinking-outside-the-box.html

COVID-19 research

ITLS is undertaking essential research into the unprecedented impacts that the COVID-19 crisis is having on transport and logistics, both here in Australia and overseas. Our experts are creating thought pieces on a range of pertinent issues including the impact on public transport and traffic congestion as well as lessons to be learnt from overseas. We are also regularly being called upon for media comments. You can view all our COVID related work at: https://www.sydney.edu.au/business/our-research/institute-of-transport-and-logistics-studies/research-activity/projects.html

Contents

1. Our old future for public transport won't work with the new normal

As the world continues to grapple with the changes brought about by the COVID-19 pandemic, our previous ways of handling mobility and transport planning need to be updated to suit these changing circumstances, write Professor John Nelson and Emerita Professor Corinne Mulley.

11 January 2021

As we start to emerge from lockdown, we hear from politicians worldwide that public transport should be used as a last resort. But this sounds the same as 'public transport is not safe'. After usage plummeted during lockdown – with some cities as high as 90% - the challenge for governments is to ensure public transport should not only be made safe but also that people must feel safe in travelling on public transport.

The worry must be that if public transport is labelled as a major transmitter of Covid-19 by our Governments then citizens will believe that it is unsafe. This self-fulfilling prophecy will make the decline in public transport seen in lockdown become much more permanent. Coming out of lockdown must be associated with public transport being still the mode that provides the greatest chance of a sustainable urban future.

Introducing measures which, whilst having no scientific evidence for improving safety, may improve passenger trust in the safety of the system. Safe travel is both a question of putting in place good practice with clear messages but understanding how to improve safety perception.

Physical distancing measures like Sydney's "No dot, no spot" are a good starting point. Other effective measures include marshals to assist with queueing; London is using "Journey Makers" – building on experience with "Games Makers" at the 2012 Olympics.

However, we must recognise that public transport is not only about reaching destinations. Mass transit facilitates an efficient use of road space – think about the number of cars that would be on the road if Sydney Trains did not exist.

We know that by reducing the number of vehicles, air quality is better. Delhi, India has had the first blue skies for many years as a result of traffic reduction in their lockdown. Public transport provides the necessary mobility for our older and more frail citizens as well as the many people without access to a car. These are exceptional times and it is rare to be thinking about how to depress demand for public transport rather than increase it, but it will be a failure for urban sustainability if car travel becomes the dominant mode again.

The 'new normal' offers opportunities that should not be lost. Working from home has been a hugely successful natural experiment showing that it is not necessary for many to travel each day. It is an example of a non-transport policy to help solve a transport problem. But some aspects of the experiment still need to be validated – was productivity higher, is worker stress increased? Nevertheless, it is clear that some degree of working from home is likely to be here to stay and to be encouraged.

While active travel like cycling and walking is good for commuters and the environment, most people find it is only good for short trips. Many travellers in Greater Sydney travel too far for these modes to be an alternative to public transport. And if many people transfer to active modes, it is likely to become difficult to maintain physical distancing between bikes on roads and people on pavements.

In the short term it is clear that there must be some transfer of space to meet the immediate requirements of physical distancing. Montreal has removed some parking in downtown areas and transferred this space to pedestrians, leaving the pavement for physical distanced queuing for shops. London has closed major central arterial routes to all but bus traffic to provide more space for pedestrians and cyclists.

In the longer term, mobility in our cities must change. Policies need to be tailored to different age segments with land use planning addressing the demand for housing choice and different land uses. Areas with mixed land use - offering housing, retail, leisure and jobs - provide the opportunity of jobs closer to home and mitigates against the centralisation of specialised hubs.

Car use will need to be restrained if the roads are not to become gridlocked and there is an incentive to pursue some of the innovative ideas for pricing for road use. Land use and transport planning needs to change the urban landscape and must include planning for further virus driven stresses as well as the survival of public transport to meet economic, environmental and social needs.

2.Benefiting from Covid 19

1 February 2021

We should try to take advantage of the worldwide disruption of the Covid-19 pandemic to establish new paradigms around what we value beyond pure monetary goals, writes Dr Alastair Stone, Chair of the ITLS Board of Advice

Establishing Policy around what we Value.

Covid has exposed imprecision in expressing our value systems with the debate of health vs economy the headline example. A return to all-encompassing political welfare economics could solve the semantic issue but given the many interpretations and adjectives to describe economics and social sciences, better to define more accurately what we value, and build policy around that. In the modern “experts” vs “politicians” debate let us not forget than since the Enlightenment, we have invested significant resources in educating expert groups to advise the community on selection of feasible alternatives. Are we really going to ditch that in the fog of unsubstantiated alternative “facts”? For example, *economics* is not *business* as in “the *business case*” - it is not even *finance*. Economics is all about exchange of resources between entities such that they both benefit.

Measuring the resources we value, is a challenge as many values are not easily expressed in monetary terms. But in our everyday decision making, we combine monetised and non-monetized values to make choices among close alternatives, for example, in choosing bread. Why not do the same at the scale of products such as transport, all the way to say climate?

Bearing the Costs so let us get the Benefits

It takes large disruptive phenomena like a pandemic (or war, or rebellion) to generate the energy for paradigmatic change. Physical science shows this in describing phase changes, and today we talk of “tipping points” but rarely do we pay conscious attention in the social sciences to the generation and utilization of the energy associated with such changes, or our ability to direct it to desired futures.
With Covid we are all bearing the costs so why not use the energy for change and identify the ill-conceived paradigms we have grown used to accepting, and receive benefits that flow from corrections when such paradigms match the societal values and associated growth goals the community holds.

Beyond the Pandemic

We all accept the need to deal with the pandemic to where there is established, an acceptable post-covid existence. History with other pandemics (with smallpox the exception) suggests an acceptable post-Covid existence will be different. We need a narrative for post-Covid to define a decision-making process (DMP) that reflects what we value. A first step is to measure values relevant to the many scales of communities we belong to. Post-Covid we will need to go beyond Gross Domestic Product (GDP) and use measures dimensioned to reflect the scale of the product relative to the community controlling the DMP, with causality flowing both ways. A topical example in Australia has been the use of State and Territory boundaries to measure the incidence of Covid. Clearly and now gradually being adopted, the Regions would have been more relevant to deciding policy interventions such as “lock-downs”.

Decision Making Processes (DMP)

The DMP leading to exchange between entities towards achieving stated goals, requires: defining units to measure resources; quantification of resources available; information about options available; and ultimately analysis and judgement resulting in choice, by those controlling decisions of the entity, otherwise known as governance. The DMP can be described as the exercise of discretion, to select feasible options until one option is selected as the exchange decision that best reflects the community’s values and goals.

Measuring the Economy

What we now measure and what the community is interested in is mismatched. Community goals for dealing with a pandemic are similar for example, to the industrial "business" economy needed to win World War II that produced GNP and then GDP. The measurement of GDP evolved into the individual based (Greed is Good) finance policies that dominate the neo-liberal economic thinking we have had in the last several decades. Pandemics have a characteristic comparable with a world war in their scale, so GDP thinking is currently somewhat relevant but not so much for post-Covid given that community values have evolved to reflect goals of "wellbeing with resilience and sustainability". The lack of goals beyond increasing GDP reflect frustrations that go back for example, to Robert F Kennedy 1968 Vanderbilt speech that stated:

"*The gross national product does not allow for the health of our children, the quality of their education, or the joy of their play. It does not include the beauty of our poetry or the strength of our marriages, the intelligence of our public debate or the integrity of our public officials. It measures neither our wit nor our courage; neither our wisdom nor our learning; neither our compassion nor our devotion to our country; it measures everything, in short, except that which makes life worthwhile*".

This issue was revived by the French President Sarkozy who sponsored a Report on the Measurement of Economic Performance and Progress in 2009 authored by Stiglitz, Sen and Fitoussi. The OECD took up the challenge to support the measurement of wellbeing with statistics that go beyond GDP. OECD support resulted in the appointment of a High-Level Expert Group led by Stiglitz, Fitoussi and Martine Durand, the latter being the Chief Statistician of the OECD.

The central motivating force for this work stated by Stiglitz is that "what you measure affects what you do" in formulating policy. The catch cry for the work has been "beyond GDP". The status of this work in the OECD is summarized overall in two recent books, "Measuring what Counts", and in a companion volume "For Good Measure", where each area of research is summarized. A major fundamental outcome is that we need to measure the wealth (capital) of a community as well as its income (jobs). In other words, we need to account for both the profit and loss (flows) and the balance sheet (stocks) to measure progress in growing our well-being (all valued resources not just money).
An Australian National Development Index was published for several years centred at the University of Melbourne with private funding from various foundations, and the Australian Bureau of Statistics, who publish Measures of Australian Progress until budget cuts in 2014.

New Zealand introduced a "well-being budget" last year (2019), targeting mental health, child welfare, Indigenous reconciliation, the environment, suicide, and homelessness, alongside traditional measures of productivity and investment. Leaving aside the challenges of formulating appropriate theoretical underpinnings for such measurements, the main challenge to advancing community performance measures in Australia has been the absence since 2014 of participation and political support for such work by Government organisations such as Treasury Departments. Hence major public financial resource allocation decisions appear not to benefit from reference to many values that are important to the community. And when it comes to the allocation of discretionary (high scale) public investment for achieving long term growth of wellbeing, major allocations for "public infrastructure" dominate - a topic to which we will now turn.

Institutional Economics

It is rare in policy analysis in Australia to find in government, private sector, and academia a willingness to analyse let alone criticize current institutional arrangements for infrastructure provision. This is partly explained by the dependence that many actors in these sectors have on existing institutions for obtaining the financial resources required to sustain their work. Further, it is partly explained by the investment these actors have in maintaining the status quo and the worth of their expert knowledge of the current arrangements. Philosophically, it is attributable to the existing power arrangements that control decision-making or governance structures for infrastructure. Too often in the current circumstances in democratic representative economies, it is political parties, and lobbyists for large domestic and foreign private and public corporates, and their industry group representatives, that exercise power and control over policy and investment decision making. Again, the Covid 19 pandemic brings with it the energy and hence power to undertake such rare analysis of all these institutional arrangements.

Targets of Opportunity in Networked Infrastructure Services

The bulk of infrastructure investment are in networked services. Not just transport (Mobility) services but all networked services including water, communications, energy, health etcetera which, in terms of the DMP for policy, have variables whose economic functional shape are similar.

Then somewhat abstractly, the issues that have great potential to produce post-Covid Benefits from research, can be divided into firstly; a set of products that constitute the service; and secondly, for each product, a set of functions that are descriptive of the economic characteristics to be used in mapping to rank alternatives in a multi-dimensional space using complexity theory to decide on an allocation of resources to meet the well-being goals of the community at the subject community scale.
Less abstractly, all networked infrastructure services are a combination of four products namely an allocation of; long term resources ("commons" of increasing value) such as land for rights-of-way or sites; long term facility resources (of depreciating value) such as a road formations or a pipeline; allocation of medium term resources for variable facilities such as a vehicle; and short term resources such as operating consumables.

For each product, the allocation of resources generally follows a power function as scale increases. And due to network effects including constraints by prior choice of options (particularly when hierarchical governance structures are used, increasing value of first mover effects are even more pronounced). The work of Koestler, inter alia, developed theories around these concepts known as Self-organizing Open Hierarchical Order (SOHO) institutional structures to show the desirability, in democratic economies, of bottom up strategies based on subsidiarity, compared to top down authoritarian based philosophies. Many paradigmatic issues remain, such as defining the boundaries of the relevant community, and the time vale of consumption.

Surely research into these types of issues can have a major influence on our well-being post Covid that are worthy targets to ensure we will be benefiting post-Covid when we are already now bearing the Covid costs?

3. An international trade perspective on user pays road network charges

8 March 2021

James Bushell, PhD Candidate, posits that if the road sector is subsidised by the wider economy in a non-equitable way, this could become an area of trade risk for Australia if it is seen as inconsistent with World Trade Organization (WTO) rules.

The Australian agricultural sector, in particular barley producers, were shocked when China applied import tariffs on exports to China, on the basis that Australia was dumping barley into Chinese markets. These tariffs appeared to be geopolitical, coinciding with Australia's calls for an independent investigation into the source of coronavirus. However there are other factors at play, including food security and protection of the Chinese domestic economy, and it may be that China would have levied these tariffs anyway. There are many possible ways of arguing a dumping action, but they are all basically about whether goods sold into a country are done so at less than cost. This cost may be influenced through a range of factors, but a common one is government support (direct or indirect).

Funding provided through government programs may be one such trigger in the barley case. As reported, the Sustainable Rural Water Use and Infrastructure Program was originally an environmental one, but subsequently altered to address social and economic problems too. In doing so, the door may have been opened to foreign governments to make a case that these programs were being used as back door support to industries. Now this case is perhaps weak - there are claims that clear evidence in Australia's favour has not been considered by China, (e.g. the impact of domestic corn and wheat subsidies, extensive pricing data provided by Australia to China, and that the above program targeting irrigation productivity would have had very little impact on a dryland crop), But it seems that China has stepped through that door, even if to test the waters, and in doing so, harmed the Australian barley industry by levying tariffs, and denying the Chinese market to Australian barley producers.

But what does this mean for Australian roads and road user charging? Under current institutional arrangements, Australian roads are funded through a multitude of mechanisms, but none of these related to direct road use. We don't yet have a truly user pays, equitable system of road funding where the users of the road pay for that road. Instead we have a complicated mirage of a system where different road users cross subsidise each other. State government grants, local road maintenance budgets, and Federal government funding allocations all form the basis of road funding but there is little reference when planning that spending to who benefits from this underlying use or need. And in all cases, without a clear nexus to the returns that would have been earned directly from users. In our system, not everyone pays their equitable share.

Up to now, this has been a hard equity mismatch to solve, and in reality has probably not been much of a problem, given that the two-part charge of registration and fuel taxes has covered the investment and maintenance cost of our road network and the net funding for roads has been close to or above cost recovery. Proving a case of road investment being backdoor industry support would be hard in most cases. Linking spending on roads to particular beneficiaries and that the spending was purposefully for those beneficiaries is a difficult, potentially impossible task. The data to do so isn't in the public domain and even then, isn't cut in ways that make this analysis clear. In many cases, the significant benefits to private traffic over and above commercial/industrial traffic would offset and obfuscate the matter.

However, road funding budgets are soon tipped to require government funding (which may have already happened under a coronavirus impacted economy). Meaning that absent any change to funding structures, the road sector will be subsidised by the wider economy. This may open the door to complaints that some road funding may be trade supportive and may not consistent with WTO rules.

As noted, most cases would be hard to prove, however there are some examples of programs, such as the NSW Fixing Country Roads program and the Northern Australia Beef Roads Program , that do target specific infrastructure and/or industries, and if not correctly administered, may be an area of trade risk. Foreign governments with their own barrows to push may not let those details get in the way of a protectionist action. If some of these programs are seen to be somehow directly supportive of industries that compete with their own, and as is possibly the case with these barley tariffs, they may selectively choose facts in order to make their case and justify their actions. This could lead to the imposition of protectionist mechanisms that will penalise our industries, quite possibly unfairly.

The barley tariff case is yet to be heard and decided upon at the WTO, and a number of defences are being pursued, but the damage of tariffs is already happening regardless of their legality. Ensuring that the door is closed to challenge is just one way in which we can ensure that our trade channels are not compromised. And the implementation of an equitable, cost reflective, user funded road user charging mechanism would be one way to close the door to potentially damaging WTO actions.

4. Is there movement at the station? Adapting our approach to stimulus in the face of structural change

6 April 2021

The full impact of the pandemic on long-term travel trends is yet to be revealed, and continuing to work on the assumption that things will return to pre-pandemic levels is a prudential oversight, writes Christopher Day, PhD Candidate.

With over 18 million cases worldwide and climbing, COVID-19 has had a profound impact on the global economy. Reduced economic activity, travel restrictions and government lockdowns have, according to the IMF, wiped approximately 5 percent off global Gross Domestic Product (GDP) in 2020. Depletion of monetary policy ammunition from the Global Financial Crisis (GFC), has largely paralysed the ability of central banks around the world, thereby placing the onus on fiscal policy to stabilise and stimulate tattered economies.

In response to this call, governments around the world have deployed a suite of measures including commitments to major transport infrastructure projects. For example, in June 2020, the New South Wales and Commonwealth Governments each pledged $1.75 billion to build an $11 billion Metro to Western Sydney Airport by its opening date in 2026. This presumes that air passenger numbers will continue to climb rapidly from pre pandemic levels.

Such an assumption is courageous on several fronts. The influence of the COVID-19 pandemic is likely to produce significant structural social and economic change. Business travel is expensive; a factor likely to garner greater weight in a fragile business environment. Since the outbreak of COVID-19, meetings and conferences have shifted rapidly onto online platforms such as Zoom and Skype. With remote working infrastructure in place, and its credibility proven, organisations will look to reduce travel in a post pandemic environment.

This trend extends to daily commuting patterns. Travel restrictions triggered by COVID-19 has compelled many organisations to reconsider the role of remote working. The notion that it is impossible and unproductive has lost validity. Benefits connected to working from home, such as shorter commuting times, worker flexibility, reduced distraction from colleagues and fewer meetings, have been linked to higher levels of productivity. Furthermore, businesses which use their workspaces on a rotating basis can benefit financially by decreasing their office footprint.

Isolation and loneliness have been major challenges associated with the pandemic. While social interaction in the workplace is vital for human wellbeing, daily commuting to and from work may not be. Going forward, a hybrid model where workers commute 2-3 days per week may prove most effective (Beck and Hensher 2020, 2020a). This will have a substantial impact on commuting volumes. Even prior to COVID-19, the UK's Independent Transport Commission found that the growing prevalence of working from home arrangements was a major contributor to the rail network's plateauing patronage (Williams and Jahanshahi, 2018). Recent bankruptcies by UK train operating companies (TOCs), which overestimated ridership growth on the basis of increasing central area employment, are reflective of these patterns. The pandemic may be viewed simply as a catalyst that has accelerated the movement towards flexible working.

Although the full impact of the pandemic on long-term trends is yet to be revealed, continuing as if the world is unchanged is a prudential oversight.[1] At nearly $60 billion, Transport for New South Wales (TFNSW) is currently delivering the largest transport infrastructure program in Australian history. It is important to ensure that future investments made in expanding capacity, such as the proposed Metro

West and Western Sydney Airport line, are both reflective of future needs and deliver "value for money" to taxpayers. Government finances are under severe pressure. While stimulus is required, delaying major infrastructure projects until we have a clearer view of future travel trends offers an opportunity to redirect precious capital towards initiatives that address weak economic fundamentals. A large body of evidence, inclusive of work by the IMF's Andrew Warner, find little indication of a link between infrastructure spending and economic gain. Infrastructure expenditure tends to create short term construction jobs rather than high value and more permanent jobs derived from advanced manufacturing in emerging sectors such as renewable energy.

As economist John Maynard Keynes famously observed "When my information changes, I alter my conclusions. What do you do sir?" Our policymakers should consider the same.

[1] A survey by consultancy SYSTRA has found that commuting volumes in London could fall by as much as 40 percent from pre-lockdown levels with rail travel dropping 27 percent (BBC, 2020). Concurrently, there has been a boom in walking and cycling.

References

- Beck, M. and Hensher, D.A. (2020) Insights into the Impact of Covid-19 on Household Travel, Work, Activities and Shopping in Australia – the early days under restrictions, *Transport Policy,* 96, 76-93
- Beck, M. and Hensher, D.A. (2020a) Insights into the impact of COVID-19 on household travel and activities in Australia – the early days of easing restrictions, *Transport Policy*, in press.
- BBC. (2020). Coronavirus: Transport usage will change after lockdown. Retrieved from: https://www.bbc.com/news/business-52414376
- Williams, I. Jahanshahi, K. (2018). Wider Factors affecting the long-term growth in Rail Travel. Independent Transport Commission. Retrieved from: http://www.theitc.org.uk/wp-content/uploads/2017/05/ITC-Report-Rail-Passenger-Demand-November-2018.pdf

5.Riding with dogs – what can it tell us about transport?

3 May 2021

Many of us like nothing better than to navigate our city, and our lives, with our humble hound along for the ride. But if you live in Sydney, and you want to travel further than you and your dog can comfortably walk, these dog-accompanied excursions are unavoidably car bound. Jennifer L. Kent and Corinne Mulley discuss.

Sydney aspires to be a modern global city that is sustainable, livable and healthy. Part of this aspiration is the provision of an efficient and useful public transport system, enabling those who call the city home to live a life that is less dependent on the private car. Why, then, does Sydney curtail the use of public transport for people travelling with pet dogs? Our survey estimates that there are 2.4 million dog related trips carried out in Sydney by private car each week. Surely some of these could be made by train, light rail, bus or ferry?

The survey, published in an international transport journal, examined a series of popular activities that people do with their dog. We looked at the regularity of trips such as a taking the dog for a walk; visiting the park or other recreational areas; going to dog training, cafés, bars or the shops; and visiting family, friends or the vet. Then we looked at how often these trips required a car.

On average, people walk their dog twice or more a week, but for one quarter of cases, a dog walk actually began with an outing in a car. Of the more than 75 percent of dog owners who go to a recreational area twice or more a week, 45 percent go by car. And of the two thirds of people who go to the dog park three times a week, more than half went by car.

Trips to dog parks might be considered 'discretionary' but other trips with dogs are not. The survey found that dogs visit the vet, on average, two to three times a year, and these are also very car-dependent. More worrying, almost 14 percent of people said that a lack of transport had prevented them from taking their dog to the vet in the recent past, and that people not owning a car were disproportionately affected. Not everyone lives within walking distance of a vet, and sometimes the dog or owner is just not able to walk.

The survey shows how enjoying and caring for a dog in Sydney – a practice proven to have positive health benefits - is a relatively car dependent affair. We believe this is unnecessary and runs counter to the city's aspirations for global status, long term sustainability and livability.

A compromised ability to care for a dog does not have to be a negative consequence faced by those either choosing, or forced, to avoid car ownership and use. A policy solution is to allow dogs on public transport in Sydney. Although the restrictions vary between modes, overall the approach to having pets on public transport in Sydney is a default "no". Pets (other than guide dogs) are entirely banned on Sydney trains, and on buses they are only allowed at the whim of the bus driver. Sydney ferries are a little more welcoming, but our guess is that if you're in a position to travel most of the places you'd like to go by ferry then you're already one lucky Sydney-sider!

Having travelled in Europe, we knew that some cities with very successful public transport systems welcome travelling hounds. But just how uncommon is Sydney's restrictive approach to pets on public transport? We looked at pets on public transport policies in 30 cities across Europe, the USA and Australia. We found all European cities allowed dogs on public transport, while most cities in North

America and Australia did not. The policies did vary, with limits on the area of the train, tram or bus a dog could travel, peak hour travel, and the size of dog. Some cities, such as Paris, demand hounds pass a ‘basket test’ for riding in a carrier or small bag before they’re allowed to board the train. Most cities charged a fare for dogs at a concession or child price. Zurich went one step further to offer an annual travel card for dogs!

So why does Australia maintain such a restrictive approach? Does it reflect attitudes towards dogs in public in Sydney? This is unlikely as Australia has one of the highest rates of dog ownership in the world, and dogs are slowly increasingly welcome in pubs, bars and cafes. We believe it says more about the way we view public transport in Australia. The way it is planned and operated is great for predictable and ‘clean’ trips - such as the journey to work. For many though, this is not the reality of everyday life. Our lives are more typically made up of ‘messy’ trips – we go to the hardware store, pick up children and groceries, visit family and friends, and, of course, travel with our dogs. For these types of ‘messy’ trips in Sydney, public transport is not convenient (or its use prohibited) and we turn to using a car.

Reducing car use means we need to plan and provide public transport systems that respond to the mess of modern life. Understanding and overcoming barriers to implementing a pets on public transport policy would be one step in this direction.

6. Electric Cars and a User Charge

31 May 2021

Professor David Hensher argues that the recent proposed charge for electric cars should be evaluated in context with existing fees and taxes such as car registration, GST, tolls and so on, in order to make road usage costs more equitable and sustainable for all.

The Drum program on the ABC on November 23 discussed the proposed (in Victoria and South Australia and more recently NSW) electric car usage charge as a tax on kilometres of electric vehicle usage. After listening, I feel compelled to try and explain the proposal in a way that might be clearer than what we heard on various media outlets.

The argument should be firmly rooted in two propositions - one to reflect the view that those who use the roads should pay for the benefit received, and the other to incentivise a young industry to grow its product given its environmental advantages over ICE engines that use petrol or diesel in the main and in which the latter currently contribute through fuel excise collected by the Federal government, although this excise is poorly correlated with user benefit and especially where we have congestion and high levels of emissions, both greenhouse gas emissions (CO_2) and local air pollution (e.g., CO, NOX, PMs etc.).

What we need to do is to look at all the current charges, fees and taxes such as car registration, driving licence, GST on car related outlays, fuel excise, and tolls as road specific charges, and ask how we might price the use of roads more efficiently and equitably. This is not a new debate, but now we have an overlay of a very serious alternative energy technology that we want to support. But if electric cars scale up, as we hope, then from a transportation point of view (in contrast being a manufacturing capability) we know they will cost less to purchase and far less to run (Hensher 2020)[1] even with clean fuel (ignoring the lifecycle emission stream in contrast to the end use emissions).

The way forward is to not simply assume a new charge on electric cars, but to revise all charges and align them with user pays. We have been arguing for many years that even before the soon to be exploding debate on the proposed electric car user charge, we should reduce fixed charges such as car registration and introduce a distance based charge; but to get buy in so as to ensure it passes the 'hip pocket test' so that people are not financially worse off, but that their outlays reflect the benefit better through the use of the roads. We can do this by reducing or eliminating vehicle registration charges, introduce for example, a distance based charge in

[1] The general position of experts is that the cost of an electric vehicle will be significantly less that a petrol or diesel car (the switching point is unclear, but many suggest in about 10 to 20 years), and that the cost of using such vehicles will decline. A taxi driver of a fully electric taxi in London said recently that his fuel costs have dropped by one hundred pounds per week or $Aud178 per week, or close to $Aud10000 per annum[1]. This is substantial. In Australia, the EV Council suggests that an EV's fuel cost will be 34.3 cents per kWh compared with average petrol cost of $1.36 per litre. This translates into 5.15 cents per kilometre for an EV compared to 14.39 cents per kilometre for an internal combustion engine using petrol, an average saving of $1,275 per annum on fuel costs alone.

peak times such as 5c/ km in congested areas[2] plus a1c/km for emissions which occur regardless of congestion. This could be adjusted to reflect the fact that electric cars are likely to grow in use given the lower cost of owning and using them compared to ICE cars, threatening the viability of public transport; and so we need to ensure that while emissions might be lower if not eliminated per car and per kilometre, there will be other negative externalities such as worsening congestion in some settings, and hence electric cars should pay according to the benefit received. So the proposed 2.5c per km in Victoria is, in my view, part of a sensible package opportunity to remix the suite of charges - fixed and variable.

Given it is an unlikely that governments will listen and act this way, then the best we can hope for is that the 2.5c per km might be hypothecated *to a sufficient extent* to support both a young industry and some amount of road improvement. This seems sensible since fuel excise has never anyway been enough to fully fund road maintenance and investment.

Reference

Hensher, D.A. (2020) Electric cars – they may in time increase car use without effective road pricing reform and risk lifecycle carbon emission increases, *Transport Reviews* Editorial Series, 40 (3), 265-266 DOI: http://dx.doi.org/10.1080/01441647.2020.1709273.

[2] Our research suggests that halving car registration and introducing a peak hour distance based charge of 5c/km in Sydney will improve peak period travel times by between 6-10%, effectively equivalent to school holiday travel times.

7.12 million Australians in lockdown: Quarantine transport once again in focus

5 July 2021

Dr Yale Z Wong examines the systemic failures in Australia's quarantine process, and proposes that an alternative, holistic approach with aims to effect change at a cultural level would be more effective.

In a December 2020 article for The Age, I called for a comprehensive review of quarantine transport in Australia. The Victorian COVID-19 Hotel Quarantine Inquiry omitted to provide any substantial focus on quarantine transport—high risk, confined settings and a single point of failure in the quarantine system. Whilst recommendations were provided with respect to the "transit of returned travellers", the transit of air crew, typically undertaken by ground transport companies under contract to airlines, was not afforded the same level of consideration.

Greater Sydney (including the Blue Mountains, Central Coast, Wollongong and Shellharbour) has commenced a 2-week lockdown costing the economy $143M per day, which led us to stand at the brink of a national outbreak (resulting in lockdowns in Darwin, Alice Springs, Perth, Brisbane, Gold Coast and Townsville, plus restrictions in other states/territories), due to the infection of an air crew ground transport worker with the Delta COVID-19 variant. Investigations have shown that the driver failed to wear a mask, whilst systemic issues surrounding daily testing and the failure to vaccinate (linked to deficiencies in the definition of "border worker") continue to proliferate.

On 26 June 2021, NSW Health quietly updated its air transportation quarantine guidelines, but significant accountability and quality control questions remain. Continued quarantine failure also demands a rethink of our national priorities and our accepted approaches to risk mitigation.

Governance failure

The public deserves to know the regulatory and performance regime governing quarantine transport operators. Whilst returning travellers are transported by large bus and coach operators (e.g., ComfortDelGro, Kinetic) under contract to state governments, the transport of crew is more opaque and involves a relationship between airlines and small, private ground transport companies (e.g., Sydney Ground Transport, Legion Limousines). Any breach is of catastrophic consequence, as we are once again witnessing.

We need clarity in the chain of responsibility (and who forms this chain), based on principles of shared responsibility and accountability for ensuring all infection control measures are maintained. Questions remain over whether 'guidelines' are legally enforceable, and whose role it is to monitor and police. Perhaps there should be separate accreditation requirements for quarantine operations too.

Quarantine transport operators must be sufficiently incentivised beyond the protection of personal health (which in a low COVID-19 risk environment like Australia is a difficult imperative). Contractual obligations should be independently vetted, whilst a stringent punishment and reward system could raise the stakes, with offending operators even named and shamed. Infection control breaches could also be grounds for the termination of employment as part of contract stipulations.[3]

[3] Many errors call for the immediate dismissal of bus drivers, such as the failure to engage the handbrake. A deliberate disregard for infection control measures should be treated no differently.

Operator responsibilities

An appropriately incentivised operator should go above and beyond to protect its employees and, by extension, the rest of the community. In Australia, we have seen a light-touch approach to personal protective equipment provision. The use of fit-tested P2/N95 masks, goggles, headwear and medical gowns in all high risk scenarios is a fail-safe solution. Retrofitting vehicles with physical barriers, and the use of anti-epidemic technologies such as anti-microbial coatings, and disinfection solutions like ultraviolet, fogging and nano-technologies can reduce error and inconsistency. These initiatives may be mandated or encouraged via appropriate market forces (operationalised through contract design).

Whilst technological solutions are important, they are only as effective as individuals' personal responsibilities and behaviours. We have seen little invested by way of proper infection control training for frontline quarantine staff. Border workers could be trained in the same way medical staff are, plus given added directives such as the quarantining and disinfection of clothing and personal items to reduce the risk of spread to household contacts.

Focus should not only be on compliance but on building a zero-tolerance culture that stigmatises complacency and error. Total quality control and elements of the Six Sigma Doctrine have been effective in many sectors (e.g., manufacturing) in reducing the variance in outcomes. Pointing-and-calling, pioneered in the 1920s as a Japanese railway safety protocol, is a low-cost occupational safety strategy. Verbalising intended actions increases attention and awareness and has been found to reduce errors by 85%.

https://www.youtube.com/watch?v=RZun7IvqMvE

Philosophical approaches to risk mitigation: The upstream problem

Living in a Western liberal democracy means that we often take as granted 'orthodox' knowledge, including in the health sphere. Whilst we see some level of variation amongst different State Premiers and Territory Chief Ministers, we can still benefit from a wider perspective on alternative health and risk mitigation approaches, particularly having witnessed how management and response measures have varied around the world (between the East and West, in particular).

In general, Western medicine tends to focus on diagnosing/treating the symptom rather than preventing the disease. This puts us at a significant disadvantage when it comes to pandemics, which are highly time sensitive. With the benefit of hindsight, we are able to see issues in the context of waiting for evidence of asymptomatic and people-to-people transmissions some 18 months ago, as well as the misguided debate over the efficacy of universal mask wearing.

In Eastern philosophies, there is a high focus on prevention, body strengthening, balance and wellbeing. This is guided by systematic thinking, with the objective of achieving harmony between the mind and body. The idea of vitalism is captured by concepts like *feng shui*[4], *yin/yang*[5] and *qi*[6], with links to airflow and ventilation which are (finally!) becoming a focus in the West in the context of aerosol spread.

One useful analogy is to associate Eastern schools of thought with having a focus on upstream thinking and Western ideology with having a downstream focus—exhibited in the principles guiding management of the COVID-19 pandemic. A number of pandemic-related examples of upstream- and downstream-dominant thinking are listed below:

[4] Literally meaning "wind and water", describing the study of flows in the environment

[5] Interpreted as "dialectical monism"—*yin/yang* etymologically translates as the French *ubac* "shady side of a mountain" and *adret* "sunny side of a mountain"

[6] Translates literally as "air", and figuratively as "life energy"

	Downstream thinking	Upstream thinking
On objective	Virus elimination; return-to-normal[7] (seek silver bullet)	Virus co-existence; human adaptation[8] (seek system change)
On strategy	Proportionate response (context-specific; reactive)	Fail-safe approach (holistic; proactive)
On mitigation	Focus on testing, tracing and isolation (not scalable)	Focus on zero transmissions (lockdowns and quarantine)
On transmissions	Focus on avoiding contact with viral matter (hence, physical distancing and hand hygiene)	Focus on reducing viral matter in the air and environment (hence, universal mask wearing)
On civic engagement	Focus on compliance and personal agency (individualist societies)	Focus on culture and civic responsibility (collectivist societies)
On vaccinations	Vaccinating the elderly since they are most at risk of disease and death (e.g., most Western countries)	Vaccinating younger working adults since they are more social/active and so this reduces community transmission opportunities (e.g., China, Indonesia)

Australia has averaged one quarantine breach every 2 weeks (and 8 since the beginning of June). We seem resigned to the fact that quarantine breaches are inevitable. The debate appears fixated on how to handle community cases, at what stage to implement lockdowns and restrictions, and argy-bargy around state border controls and closures. Australia has now jumped to reducing international arrivals as a solution for quarantine failure.

We seem resigned to the fact that quarantine breaches are inevitable.

The reality is that, were it not for cases of leakage from the quarantine system, we would not be having this discussion. It's time we adopt an upstream-focused mindset, with a zero-tolerance approach to quarantine breaches. Why is there not more outrage from the community on every quarantine breach—and a demand for accountability?

We also see in places like the UK and Israel, even with widespread vaccination, the failure to re-educate society (and change culture), as well as an obsession with "returning to normal" may not work in a pandemic-induced world. Meanwhile, we see universal mask culture in East Asia (based on collective responsibility, not compliance) continuing to offer a major defence mechanism against flare-ups. In Australia, we see constant fluctuations in mask rules and social distancing measures (e.g., on public transport) as the level of community transmissions rises and falls—neglecting the fact that these very measures are what keeps COVID-19 transmissions at bay.

There are both strengths and weaknesses in Eastern/Western cultural approaches to problem solving and harm minimisation.[9] We should start with a broader perspective and select amongst a menu of options in a way that is not myopic/dogmatic but values-driven and a conscious, rational choice. The path towards more diverse ways of thinking may be manifested through more diverse governance

[7] In the West, we expect the external environment to change for us. In the East, we change ourselves to fit the external environment.

[8] The irony is that by not placing faith on a single solution (i.e., immunisation), society is better placed to adopt behaviours that result in a virus elimination outcome.

[9] As Henry Kissinger aptly notes, "America has a problem-solving approach; China is comfortable managing contradictions without assuming they are resolvable."

amongst our elected officials and health authorities. Combining different disciplinary and cultural perspectives can offer benefits that are often only apparent in retrospect. Perhaps more upstream/holistic, systematic thinking can bring about a different set of investment and reform priorities, including better governance and quality control in our quarantine transport operations.

8. Resurgence of Value Capture

2 August 2021

Professor Martin Locke discusses the potential benefits of active value capture for major transport projects, where such mechanisms can offset the increasing cost of infrastructure funding.

The concept of value capture has been widely discussed over the past decade as a potential supplement to inadequate availability of funding for infrastructure. It seems intuitively obvious that the development of transport links leads to an uplift in land value and some of that value can be captured and used to relieve pressure on funding. However, there has been a persistent reluctance to implement so-called active value capture mechanisms. Concerns such as deterring development through the imposition of additional taxes and the difficulty in accurately predicting the impact on land values, have stifled the widespread application of value capture initiatives. For example, the Sydney Metro City and Southwest business case included discussion of a Special Infrastructure Contribution ("SIC") as an active value capture mechanism as a potential option but the SIC has not been introduced.

Advocates of value capture have been left frustrated at a time when pressure on funding capacity is intensifying as a result of COVID-19. However, there have been three specific events over the last few months that indicate the tide is turning in favour of a resurgence of value capture.

Western Sydney Aerotropolis SIC

An active value capture mechanism in the form of a SIC has been proposed for the Aerotropolis as part of Sydney Metro Western Sydney Airport. The SIC is stated to be "an important part of integrating land use and infrastructure to ensure the Aerotropolis will be a great place to live, work, study and do business." The SIC is proposed to seek contribution from developers in line with zoning changes and uplift in the value of the land brought about by infrastructure investment. Due to the significant investment by the State and Commonwealth governments in transport infrastructure, a two-tier SIC rate is proposed, including an NDA charge (based on net developable area) and a Station Precinct charge. The Station Precinct charge will apply to development in the vicinity of two Sydney Metro stations and will recover some of the State and Commonwealth governments' investment in the proposed Sydney Metro Western Sydney Airport project. The Station Precinct charge will apply to land within approximately 1.2km of the proposed Western Sydney Aerotropolis and Luddenham stations and land zoned Mixed Use and Enterprise. The Station Precinct charge is calculated as a percentage of the cost of carrying out the proposed development. The proposed contribution rate for Mixed Use developments is 2%. The NSW Government has estimated that the proposed SIC for the Aerotropolis may enable up to $1.1 billion to be collected by 2056 to support the project.

While the potential offset is relatively modest compared to the $11bn cost of the entire new rail line and six stations, the decision to proceed with the SIC is to be congratulated and represents a major step forward.

NSW Productivity Commission Review of Infrastructure Contributions

The NSW Productivity Commission has recently published its final report following a review of infrastructure contributions in 2020. The review is highly critical of the existing system and proposes several ground-breaking reforms, including a recommendation that the beneficiaries of major transport infrastructure investments should contribute to cost for rezoned properties within station service catchments. The report contains a host of insightful observations and statements including:

- lack of an efficient approach to infrastructure cost recovery has caused significant land value uplift around major projects. This tends to reduce the benefits to the State of public investment and is an inequitable transfer of wealth from taxpayers to certain property owners.
- for land value uplift to be genuinely contained and taxpayers to gain substantive benefits from their investment, an *active value capture* approach is required.
- sale of development rights is an innovative way of opening development opportunities on government land while helping to defray costs of State investment. It is not, however, a comprehensive solution to the problem of funding and delivering state infrastructure in a timely and coordinated way.
- Support for value capture—potentially through a betterment levy—was shared by stakeholders, who criticised the current operation of special infrastructure contributions.
- Bureau of Infrastructure, Transport and Regional Economics (BITRE, 2015) surveyed land value changes for more than 100 projects, finding that heavy rail, light rail and bus rapid transit investments result in an average uplift in property prices of 6.9 per cent, 9.5 per cent and 9.7 per cent respectively.
- To more efficiently and equitably deliver transport services, a transport contributions plan should be adopted by Transport for NSW based on the following principles:
    - charges are justified on the basis beneficiaries of major infrastructure through expanded development capacity should pay as it generates uplift in land value
    - the objective is to recover development-associated costs accruing to the State
    - charges should apply to properties within a service catchment—such as metro stations—and benefit from additional development capacity created as a result of the investment
    - apply on a per dwelling basis for residential development and a per square metre of floorspace for net additional commercial, retail and industrial development
    - funds should be applied to the underlying project

Whilst this is only a recommendation, the report not only endorses the widespread application of value capture but specifically requires Transport for NSW to develop an implementation plan for contributions for every major infrastructure project. In terms of the design of the plan, the report suggests:

- contributions emphasise certainty rather than cost-reflectivity, requiring flat charges for development type; variation in demand could be reflected in variation in charges for residential, retail, commercial and industrial zones and take into account density.
- opting for a flat rate provides a transparent, consistent, and certain approach and avoids the practical implementation difficulties of a systematic approach to benefits capture identified.
- contributions would be modest and have a minimal impact on feasibility.

The report provides an implementation plan setting out the process for further consultation prior to Ministerial Determinations by 1 January 2022. The report was finalised after the initial release of an issues paper and extensive consultation through roundtables and targeted discussions, although Transport for NSW is not identified in the report as a stakeholder in the public consultation process.

The report emphasises an efficient and comprehensive approach to cost recovery through improved state contributions rather than a shift to benefits capture. Reform and the recommendations are heavily influenced by the objectives of certainty and simplicity and avoiding complexities of implementation and administration. This is reflected in the recommendation of a flat rate with contributions set at a modest level. This outcome reflects the trade off against (i) imposing a higher charge that deters development and (ii) calculating a contribution rate that is based on a specific valuation of the land value uplift. This raises questions as to (i) whether the contribution flat rate will be set at a meaningful level and (ii) the prospect of continuing inequitable treatment of beneficiaries of land value uplift as a result of the homogeneous approach.

The report recognises that a complete shift away from assessing land value uplift is not appropriate in stating that Transport for NSW in setting the scale of the transport contribution should apply higher charges where costs and benefits are relatively higher. This appears to suggest that there will be a continuing requirement to assess benefits. As noted above, the contribution for the Western Sydney Aerotropolis was set at 2% for mixed use developments; it is reasonable to assume this rate was determined after a benefits assessment was undertaken. Perhaps the methodology could be published to provide standard guidance. The Productivity Commission also identified in its earlier issues paper that current policy allows special infrastructure contributions to help fund the cost of transport interchanges but not the cost of the rail lines in between. Is this anomaly to be clearly corrected moving forward?

There has been widespread discussion over the past decade of the difficulties and inconsistencies in assessing land value uplift, resulting in a failure to build consensus, bureaucratic procrastination and political hesitation. My personal view is that the report helps progress the debate by at least recommending the implementation of a specific active value capture mechanism rather than resort to passive value capture.

Sydney Metro West – Pyrmont Station

Sydney Metro has previously used integrated station developments as a mechanism to capture value, whereby developers have been required to contribute to station costs in return for receiving over station property development rights. Sydney Metro has recently announced the addition of Pyrmont station as part of the Sydney Metro West project. As part of that announcement, Sydney Metro indicated that a value share contribution mechanism will be applied to the Pyrmont Peninsula once the Sydney Metro West project opens. This mechanism will require some commercial property owners that benefit from increased land values associated with the new station to make an annual contribution to offset the cost of building the station. A one-off Transport Special Infrastructure Contribution will also be applied to certain new developments in the Pyrmont Peninsula in advance of the station opening. The quantum of contributions has not been disclosed at this stage.

Financing Faster Rail Report

Mention should also be made of the release of the Financing Faster Rail Report in December 2020 following the Parliamentary Inquiry under the chairmanship of John Alexander. John Alexander has championed the introduction of value capture and notes in his foreword that previous recommendations to establish a value capture model have either been ignored or given token acknowledgement. The report provides a good commentary on the issues and summarises the different perspectives of influential market participants. But many of the views expressed are contradictory and further work needs to done to reconcile differences and reach a consensus. There are high level comments from experts about the need to act fast and sad stories about value escape. The recommendations focus on the need to value land before announcements and develop a fair and equitable infrastructure levy mechanism. But without strong leadership to build a consensus on the design of the value capture mechanism, these recommendations stand the risk of being ignored again.

Outlook

The decisions to proceed with the Aerotropolis SIC and the Pyrmont station contributions plan indicate renewed political appetite for facing up to the challenge of dealing with landowners and developers and curtailing windfall gains on land value uplift. Moreover, funding can be raised in an equitable manner to offset in part the increasing cost of major transport infrastructure projects. The Productivity Commission now provides a well-argued framework for implementing a systematic approach to value capture through the proposed transport contributions plan. Is 2021 set to cement the resurgence of value capture and put an end to value escape?

References

1. NSW Government, Planning for the Western Sydney Aerotropolis: Proposed Special Infrastructure Contribution, November 2020
2. NSW Government, Sydney Metro City & Southwest, Final Business Case Summary, October 2016

3. NSW Government, NSW Productivity Commission, Final Infrastructure Contributions Review Report, November 2020
4. NSW Government, Sydney Metro, New metro station for Pyrmont viewed at https://www.sydneymetro.info/article/new-metro-station-pyrmont on 14/1/21
5. Australian Government, House of Representatives Standing Committee on Infrastructure, Transport and Cities, Inquiry into options for financing faster rail, Fairer funding and financing of faster rail, December 2020

9. Turning the Australian supply chain symphony into a masterpiece: Institutionalised collaboration

6 September 2021

Professor Ben Fahimnia calls for a more collaborative supply chain management culture to optimise business processes in this increasingly globalised age.

The pandemic has exposed many weaknesses in our supply chains, the biggest being the lack of collaboration between different supply chain stakeholders.

At the height of lockdown, interest in videos of individual musicians cut together to form orchestral pieces soared. Whilst these efforts are admirable given physical distance requirements, the final products are admittedly not as good as a live performance – they were missing a conductor. Supply chains in Australia work in much the same way. The world-class supply chains know that *it takes a great conductor to turn the supply chain symphony into a masterpiece.*

Supply chain management is often referred to as a branch of operations management. Prior to supply chain management being introduced as a concept almost half a century ago, organisations bought their materials locally (or made them internally), processed them, and sold their final products to local markets. It was easy for managers to have everything under their own control using standard operations management tools and techniques.

Things started to change dramatically with globalisation because organisations are now required to deal with several stakeholders, both internally and externally. I refer to these stakeholders as the orchestral sections that work together to create the supply chain symphony. The management is the conductor who runs the show and is held responsible for synchronisation of all activities.

The only form of collaboration prior to supply chain management was "internal" collaboration between individuals within the organisation. However, with the involvement of external stakeholders in multi-layer operations (or supply chains), collaboration can be either internal (e.g., collaboration between different functions or departments) or external (e.g., collaboration with external stakeholders and third parties).

The different functions of an organisation such as marketing, sales, production, procurement, and logistics are the primary orchestral sections (internal stakeholders) that play the symphony, of course under the leadership of the conductor. The leadership comes with certain challenges. Tensions between different functions are inevitable given that individuals and departments are performance measured against different criteria. Externally, collaboration with customers, suppliers, and third parties are even more challenging than ever before given that entities in a supply chain (producer, supplier, distributer, etc.) have different goals and thrive to maximise their own utilities.

It all comes down to the management. Senior managers have realised the essence of all types of collaborations – as often and unsurprisingly addressed in the strategic intent documents. We have seen statements such as "*we are going to be a truly collaborative organisation that…*", but the IT infrastructure, education/training, and organisational culture are often the bottlenecks to achieve the desired outcomes. We must remind ourselves that a conductor can only run the show if all the required instruments (infrastructure and technologies in a supply chain) are available and each section of the orchestra works in tandem with the others.

Most organisations have a big pool of data from their operations, but the data is usually a complete mess because it is collected, stored, and used differently, inconsistently, and unsystematically by different individuals and functions/departments. This is where digital transformation and organisation-wide platforms/guidelines for data collection and processing will help.

The drum beat needs to be set by the chief executives, but conducting the show is in the hands of operations and supply chain managers. There are various approaches to help supply chain managers to ensure that the organisation is internally aligned, and the employee is adequately instructed and incentivised to take collaboration seriously. We can only expect our employees and managers to take collaboration seriously and be comfortable collecting and sharing information/data if they understand the rationale and are held accountable. This is to say that we need specific guidelines and approaches to take the collaboration concept from the chief executive to the frontline.

Establishing a collaborative culture is obviously not an overnight exercise, but rather a long process. What is important to understand is that a supply chain can only be optimised if collaboration is institutionalised. It comes with some costs in the short-term but has an attractive end product: “a cohesively assembled orchestra to play a unique supply chain symphony”.

10. Is Globalisation through digital platforms a good idea?

5 October 2021

The COVID-19 pandemic forced many employers to introduce flexible work from home arrangements for their staff. Professor David Hensher looks at the pros and cons of implementing this on a global scale so that labour markets are not restricted by state or even country.

As we increasingly connect to the world through digital platforms, it is becoming clear that we could view the world as the new employment market and hire the best of the best talent no matter where someone is located. People might start to choose a location to live where the focus is on lifestyle, wellbeing etc., and see the location of employment being of secondary concern because it is accessible via the digital spectrum. This great plan depends on being able to work remotely and having superb access via the internet. It also depends on employers, and indeed governments, accepting the fact that skills can exist in other countries and should be accessible without limitations.

This view has both upsides and downsides. The upside is as we have outlined - where an employer or businesses more generally can hire employees or consultants based anywhere in the world and indeed, may hire at a competitive price if such talent is less expensive to hire when based in another country compared to locally. This, however, may get the Union's very concerned and object. A downside is that there is a risk of eroding the employment talent pool locally (including meeting national employment targets for residents) such that a significant amount of the expertise of merit resides elsewhere and spends it salary (and may even pay tax offshore) in another country, with all the associated multiplier benefits to a local economy lost even after allowing for any net productivity gains from the greater skills of employees or contractors. Of course, digital connectivity is not just a matter of domestic or of international labour input; it can also be associated with differing labour markets within a single country. A Professor at the University of Sydney lives in Tasmania and commutes to Sydney one data week. There are many and growing such examples.

No longer to the same extent as pre-COVID-19 does someone have to live in Melbourne in order to work in Melbourne, for example. One can have the office in Melbourne, live in Sydney and a satellite office from time to time at the Gold Coast. There are enough occupations where this is increasingly attractive as a growing number of employers have, through forced experimentation, found that employees working from home can indeed in the main be trusted, are productive and enjoy benefits of a more flexible working time regime with reductions in commuting. There is a growing sense that 'flexibility is here to stay' and 'employers who offer a balance of WFH and in office will attract more high quality employees' (The Future of Office Space Summit, 17 Feb 2021).

So we must tread carefully in this market place if we are to protect all the accumulated advantages of localised sourcing compared to global sourcing. The balance is delicate since it offers up some great new ways of doing business that can enrich skills as well as providing a useful way of contributing to global culture interactions and gain. In one sense, what we have is an alternative in part to international (and indeed local) travel, leading to structural changes focussed on getting work done, more so than getting to and from work.

This digital working environment will not work for all, quite clearly, but there appear to be enough jobs and individuals, employees and employers, where this has growing appeal. What has yet to be tested is what this will mean in the long term for where labour is sourced, what the costs to business will be and whether government and society more generally is content to allow this to happen. There will be complex ramifications on the ways our society has evolved, and with global tensions not in a good place at present, it may be that there are huge risks in opening up the borders to digital connectivity in the employment market without any need to be physically accessible for most or all of the working time. Issues surrounding taxation, workers compensation, liability in general and safety are already raised when some organisations in Australia during COVID1-19 will not permit employees (and indeed contractors) to be hired or work if they reside outside of their employer's state. For example, I know of a number of large organisations that will not permit such employment if you do not live in NSW. We may have to eventually sort this out if we want to be a truly global player with access to the very best in the world, instead of ensuring we maintain employment for those who are local but are less skilled than those located elsewhere on the globe; a true island mentality. Indeed, I have recently hired a senior research staffer who lives in Chile because their skills are far superior to anyone I have managed to find in Australia; but it involved a rather convoluted journey to ensure this outcome. We are now reaping the benefits.

11. Airport railways and aerotropolis names

1 November 2021

Peter Thornton discusses the recent assessment on the economic viability of the Sydney Metro - Western Sydney Airport project and accompanying urban development, and outlines points for a successful airport rail link.

Infrastructure Australia recently released a report on the Sydney Metro – Western Sydney Airport (WSA) wherein they assessed that this project should not be included on the Infrastructure Priority List "*at this time*". Specifically, this was because they found that the P90 capital cost of the project would outweigh benefits by $1.8 billion in NPV terms, because less than 40% of capacity would be utilised in peak periods and of the $5.545 billion in benefits 64% would go to "*urban development (land value uplift, sustainability avoided infrastructure option value*" and only 18% to public transport users. There seems to be no mention of how much of that 64% would accrue back to the taxpayer through value capture mechanisms of which there has been much recent debate in the press.

Accordingly, I was moved to write this letter to the Sydney Morning Herald (SMH) of which they published an edited but unfortunately mangled version – somewhat missing the key point about linking the three designated cities under the Greater Sydney Commission's plan.

"It comes as no surprise to me, as a consultant in transportation and having led the planning and engineering team in the joint Commonwealth – State study which proved Badgerys Creek as the best site metropolitan Sydney had available for another airport, as well as participating in the following business case studies, that the proposed airport metro running south from St Mary's does not stack up in IA's economic evaluation terms. It was always considered that rail access to the airport would not be needed till well into the 2030s, based on access to the airport alone. However, the proposed metro is, like the railway providing access to Sydney airport, a railway which incidentally provides airport access while attempting to serve other urban and employment access needs as well. Therein lies the problem – hybridizing purpose can lead to dual inefficiencies. My own research indicates almost no one within a 10-20 km radius will use rail to access the airport - roads and parking will be too convenient - and I doubt they will do so for proposed employment centres either. The Greater Sydney Commission has sold the Government on the concept of the three cities and yet, instead of investing scarce capital into a fast rapid transit link between the three foci of that strategy – the CBD, Parramatta and the Airport/Aerotropolis - and capable of extension to the Southern Highland and beyond, Government has chosen to spend our money on a disconnected piece of railway which cannot deliver competitive travel times to the places which people who might want to use rail will really want to go."

The key issue in my mind is that the provision of space for two pairs of tracks through the airport site is one of the most valuable transport assets in metro Sydney and the provision needs to be used for the highest and best use, which does not appear to be happening with this project. Railways are no longer viable for wandering around the countryside and need to be used to link places of high employment and /or high residential density – like CBDs. Given the extent of road upgrading already underway in the form of the Northern Road and the M12, the airport is going to be very accessible by more flexible forms of transport such as high-capacity fast buses and, if Liverpool Council has its way, a trackless tram system, not to mention various forms of personal transport. A 70-minute rail travel time from WSA to the Sydney CBD is simply uncompetitive and will do nothing to enhance passenger usage of the new airport. And while I agree that a rail system should not provide for airport passengers only, the problem is that no one can predict where the workforce at the airport and at the Aerotropolis is going to come from and investment in very high-capacity fixed links along only one possible route is very risky. It takes time for people to switch given they are locked in by mortgages, schools, family commitments and the like. Road based transport will enable workers from residential locations from all points of the compass to efficiently access the employment opportunities.

My summary of what is needed to make a successful airport rail link is:

- Linking places of high passenger generation capability and growth potential locations – e.g., Parramatta and Sydney CBDs;
- A CBD to WSA time of 30-35 minutes; Competitive fares with alternatives;
- Clearly identifiable CBD point of "low friction" access;
- Similarly, an airport station that is more findable than a taxi rank;
- Focus on a few key interchanging locations.
- Fully seated, not commuter standing and crowded, airport style rolling stock;
- Less than 15-minute headways;
- A future north-of-harbour connection to tap into Sydney's *"Golden Arc of Employment"*.

This could be achieved if the proposed Sydney West Metro from the CBD to Parramatta were to be configured like the Hong Kong Airport link and continued to WSA.[1]

Finally, the Government has just announced that they have recommended that the name of the Aerotropolis city should be Bradfield, after Dr JJC Bradfield. As a fellow, albeit less distinguished, graduate in civil engineering from Bradfield's alma mater, the University of Sydney, and having spent a deal of my career trying to add onto his transport legacy, I do genuflect before the cabinet of his regalia and memorabilia in the Civil Engineering Board room. But I did send the SMH this letter which did not get published:

"Magnificent though Dr JJC Bradfield's achievements and legacy in transport infrastructure are, he had little to do with aviation – the Bradfield who did was his son Dr Bill Bradfield. And JJC already deservedly has, amongst many other tributes, honours and naming legacies, a suburb named after him – Bradfield Park – since "gentrified" into West Lindfield, probably because it was in the 1950's the site of a migrant camp! It is a great pity that the opportunity to spread such naming honours around, and specifically to NSW pioneers and inventors in aviation like Laurence Hargrave, has not been taken up."

I rather agree with some of the letters that did get published albeit they were somewhat less respectful, criticising the Government's choice as naming the Aerotropolis after *"a long dead white man who helped shape the city 50km away"* while another suggested it should be an indigenous name. (SMH letters 17 March 2021)

Of course, the airport itself has been named for Nancy Bird - Walton, now deceased, white and female. So perhaps the name of Aerotropolis should continue in this vein. Women have a bigger connection to early aviation and technology in NSW than they are usually given credit for [2]. For example, on December 5, 1909, Florence Taylor, the first Australian woman to qualify as an engineer and country's first female architect, became the first woman to fly a heavier-than-air machine in Australia, flying a glider from the Narrabeen sandhills near Sydney. She also *"put forward many ambitious schemes for the city of Sydney that were dismissed as outlandish but have since come to fruition, such as the construction of a tunnel beneath Sydney Harbour."* [3] And there are others such as Millicent Bryant who, on March 28, 1927, became the first Australian woman to gain a pilot's licence and Lores Bonney, who began flying in 1931 and was the first pilot to fly between Brisbane and Capetown, South Africa and the first female pilot to fly from Australia to England. So, the city of Taylor? Sounds a bit plain but perhaps the ***"Florence Taylor Aerotropolis"*** sounds more distinguished?

It is harder to find an indigenous connection to aviation and technology unless the boomerang is considered, which name is derived from the language of the Dharug people of the Cumberland Plain in which the Aerotropolis is located. The city of ***Boomerang***? Why not?

12. Going for Gold in economic complexity

6 December 2021

Australia should look to strengthen its economy via advanced manufacturing and diversification of exports, in order to develop greater sovereignty in the industrial space, writes Christopher Day.

At the conclusion of the 2020 Tokyo Olympic Games, Australia came in at an impressive sixth place with 46 medals, including 17 gold. For a nation of 25 million, Australia has punched far above its weight to achieve one of its best performances in the modern Olympics.

Such success came with years of planning and investment. The Australian Sports Commission (ASC) invested over $500 million to prepare athletes in the four years leading up to the Tokyo Games.

Whilst Olympic glory plays an important role in inspiring community engagement and generating a sense of national pride, Australia falls dangerously behind the mark on a critical reflector of long-term economic success – economic complexity. Economic complexity measures an economy's productive capabilities and the sophistication of its exports. These are critical for productivity growth and global competitiveness.

In 2019, Australia ranked an eyewatering 79th in the world for economic complexity. For a country that perceives itself as an "advanced economy", our ranking places us behind emerging economies such as Kazakhstan and Chile and only slightly ahead of Mauritius and Guatemala. In contrast, the top 10 nations for economic complexity are comprised of other wealthy countries such as Japan, Taiwan, Switzerland, Germany, South Korea, Singapore and the United States.

In contrast to most advanced economies, Australian exports lack both diversification and sophistication. Major exports include iron ore, coal and mineral fuels, which not only leave the economy vulnerable to shifts in commodity prices but forgo the opportunity for Australia to leverage its human and financial capital to add onshore value. Although the efficiency of Australian miners is unquestionable, the dig and ship model which underpins our prosperity deserves reconsideration if Australia is to prosper in the decades to come.

Limitations in Australia's industrial capability have been acutely revealed throughout the COVID pandemic. Supply chain disruptions to critical protective equipment and face masks were prevalent throughout the early stages of the pandemic whilst the lack of onshore mRNA vaccine manufacturing competence has restricted Australia's ability to vaccinate the population rapidly. In contrast, CSL's manufacturing capability has been critical in maintaining a steady supply of vaccines in the face of export embargoes by other nations and demonstrates the importance of maintaining sovereign capability.

Other nations realise the value of sustaining and developing sovereign capability in a global economy increasingly driven by technological and scientific prowess. Through carefully formulated policies, South Korea has become a major producer and exporter of electrical machinery, circuit boards, computers, batteries and cars. This supports the prosperity of its citizens and balance of payments. On top of this, South Korea has invested approximately AUD $2.7 billion to become one of the world's top 5 vaccine producers by 2025. This investment alone dwarfs the Commonwealth Government's $1.5 billion Modern Manufacturing Plan. In contrast, Australian politicians have been far more interested in stimulating the economy through "flashy" infrastructure projects such as the $11 billion Western Sydney Airport metro.

If investment of this scale was redirected towards the promotion of advanced manufacturing, enormous possibilities would lie ahead. The transition to a low carbon global economy and Europe's recent introduction of carbon border taxes places Australia in pole position to become a major exporter of clean hydrogen and energy intensive manufactured goods. Adding greater domestic value to exports such as rare earths and leveraging our research base through improved commercialisation of discoveries will create high value jobs, lift productivity and shore up our ability to export competitively for generations.

Australia is a nation with great potential. It is time to go for gold in economic complexity by leveraging, as opposed to exporting, our resource abundance in order to build world class industrial capability. Helping to fix the planet in the process would not do any harm!

13. Global Supply Chain Disruption- Is Retail's Xmas goose cooked?

17 December 2021

COVID-19 has caused massive disruptions to global supply chains. Gareth Jude discusses how retailers can better protect themselves from future crises with improved responsiveness and resilience.

In the last eighteen months the retail industry has experienced significant supply chain disruption. Manufacturers have experienced raw material and component shortages meaning less stock has been available. Shipping companies have had less containers in circulation and longer shipping times. Distribution has suffered from labour shortages in transport, warehousing and last mile delivery causing further delays with stock almost in the sight of the customer. Xmas is coming. This is the season when retailers generate 30%-50% of their sales and profit. Will supply chain disruption kill Xmas for the retail industry? What can retailers do to improve their supply chain management so they are better prepared for disruptions in the years ahead?
The good news for retailers is that supply chain disruption hasn't translated into lower sales or profitability in most cases. The bad news is that the conditions that created record results for many retailers are about to end. Government subsidies that supported consumer spending and restrictions on travel, hospitality and major events which gave consumers little option other than to direct that spend to retailers are being wound back. Retailers already have a supply problem; they may also be about to have a demand problem.

The real cause of supply chain disruption

The trigger for supply chain disruption in retail was the covid-19 pandemic but it's cause is the way supply chains have been managed for the last 30 years. Over that time a worldwide reduction of trade barriers, increasing shipping efficiency and the rise in quality manufacturing in what were previously third world countries has made Asia an irresistible source of supply. In addition, just in time principles (JIT), pioneered in the Japanese automotive industry, have been applied to retail supply chains leaving little room for error when things go wrong. There is also a philosophical dimension. Few retailers have followed Inditex and designed their supply chains to be responsive to local demand instead most have used low cost of supply as a first design principle. Should the supply chain management practices embraced by retailers for the last 30 years be abandoned in the face of the disruption triggered by covid-19? Will that save Xmas?

Xmas always brings peak demand not only for stock to sell but for the shipping, transport, warehousing and labour resources to get it to market. If retailers have not secured the resources they need by now it is unlikely they will be able to find them at this late stage. However, while some retailers may have less to sell than they would like, consumers are cashed up and feeling positive which makes for what should be a great retail Xmas. Now is the time retailers should look at their supply chain management practices so that they are better prepared to deal with disruption in the months ahead.

Improving supply chain management

Information has always had the power to make supply chains more responsive and resilient. The adoption of computerised point of sales systems and barcode scanning created a step change in stock availability for customers and safety stock levels held by retailers in the 1990's. Modern data capture, storage and analysis technology can now give retailers more information about what is going on in the supply chain than ever before. Deploying IOT, Cloud computing and Artificial Intelligence/Machine Learning in the supply chain increases the speed and accuracy of demand forecasts which in turn can be used to optimise the placement of inventory ensuring available stock always gets to where it can be of most value.

The value of information multiplies when it is shared. When supply chain partners collaborate it has been shown to lead to increased responsiveness, increased sales, lower overall inventory and reduced costs. The value of collaboration multiplies when more partners become involved. Up until recently supply chain collaboration has been the domain of businesses but now consumers, armed with their smartphones, are also beginning to collaborate. Consumers are collaborating in the design of products, in the financing of manufacturing and easing the last mile burden by picking goods up from retail shops, from lockers or installing location aware apps to minimise delivery fails. Adding consumers to the set of collaboration partners in the supply chain is a new area of opportunity for retail supply chain management.

Conclusion

This year's retail Xmas goose is already cooked but retailers can protect themselves from future disruption by reviewing the way they manage their supply chains. This does not mean throwing out the last 30 years of retail supply chain orthodoxy, but it does mean looking adjustments to improve responsiveness and resilience. Improving the information flow using modern data capture, storage and analysis technologies then multiplying those benefits by increasing and expanding supply chain collaboration are great places to start