Does institutional entrenchment shape instrument adjustment?: Assessing instrument constituency influences on American and Australian motor fuel taxation

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\textbf{ABSTRACT}

This article compares the long-run adjustment of transport finance instruments in the US and Australia. Change and continuity in these policy instruments highlights how the institutional context can influence an instrument constituency’s influence within a policy subsystem. In the US, a mature instrument constituency created and entrenched motor fuel taxes as an exclusive resource for implementing transport policy. In Australia, fuel taxes remained exposed to the politics of inter-governmental competition and fiscal rivalry across subsystems, leaving less opportunity for instrument constituency leverage. We explore the circumstances under which instrument constituencies can either constrain or facilitate adjusting transportation policy through fiscal mechanisms, especially when the efficacy of established instruments appears to decline. The policy paradigm of American transportation rests upon the entrenched segregation of fuel tax revenues for infrastructure spending. When fuel tax revenues grew from the 1980s until 2008, transportation policy yielded an expanding stream of programme outputs – building the interstate highway network and upgrading part of the nation’s urban transit infrastructure. The instrument constituency that shaped the Highway Trust Fund found a privileged position within the transportation subsystem. In Australia, similar instruments have not been entrenched and have thus been open to political influences beyond the subsystem. The effects of institutional configuration on instrument constituency participation in policy change become most apparent during times of austerity, or when fiscal instruments fail to deliver expected revenues. Electrification of vehicle fleets is now creating such disruption in the transportation subsystem.

\textbf{KEYWORDS}

transportation policy; instrument constituencies; institutions; motor fuel taxation

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1. Introduction: considering the instrument constituency’s role in transportation policy change

With a growing awareness of the role that instrument constituencies can play in advancing particular solutions across policy subsystems, the dynamics of such influence on the policy process over time deserves to be considered. Once instruments are successfully promoted as viable solutions, what difference does the context in which they are adopted make to their long-term impacts on both policy and politics? Our contribution to this special issue on instrument constituencies seeks to explore the longitudinal variation in influence that instrument constituency initiatives have exhibited by comparing the application of motor fuel taxation instruments in Australia and the United States, two nations with parallel growth trajectories of motorized mobility. Similar solutions were adopted to raise public revenue from the use of motor vehicles, but in the United States, instrument adoption was institutionalized with a much more direct linkage to the transportation policy subsystem than occurred in Australia. This difference enables a comparison of the consequences that embedding instruments deeply within a policy subsystem can create, over time.

In his influential analysis of the United Kingdom’s shift from a Keynesian policy paradigm to the Monetarist alternative, Hall (1993) hypothesized that the degree of change embraced by policy actors is correlated with the level of doubt about an established instrument’s efficacy. When anomalous outcomes erode a policy’s ongoing effectiveness, the legitimacy of established instruments can be undermined and alternative solutions are considered, ranging from instrument adjustment through instrument substitution to a transformation of policy goals. The resulting deliberations offer an opportunity to better understand how the instrument constituency approaches adaptation and change over the long run.

This article compares instrument adoption and adjustment efforts in Australia and the United States over a century to highlight the effect that entrenching fiscal instruments can exert on policy and politics. We seek to assess the interplay between instrument constituencies, institutions and the subsystems during episodes when policy adjustments are being considered, in response to a decline in the perceived efficacy of mature instruments. As in other contributions to this special issue, we use the definition of instrument constituencies developed by Voß and Simons (2014, p. 738) as, ‘… social entities [that] manage the linkages between model-oriented knowledge work and political implementation’. The constituency for instruments that raised public revenue from direct excises on motor fuel ranged from Progressive reformers seeking to reduce the corruption of public works managed by politicians as a form of patronage, to technocrats within government who were eager to apply the techniques and tools of traffic engineering without interference from elected officials, to corporate leaders that supplied major inputs to civilian transportation (a subset of the ‘military industrial complex’) (Goddard, 1994; Seely, 1987).

We focus on fuel excise as the principal instrument supporting highway infrastructure development, rather than less common instruments such as direct user tolls, congestion charging or public–private partnerships. As will be shown, the instrument constituency for dedicated fuel taxes had deep sectoral roots, given the formative role of its proponents in constructing public sector capacity for planning and building the major road networks that linked cities across Australia and the United States.

But as policy implementation extended over decades, more diverse mobility needs were incorporated into the public finance of transport infrastructure, broadening the engagement
with these fiscal instruments across the transport policy subsystem, and eventually extending well beyond the transport policy subsystem. By the time that instrument efficacy was called into question by the uncertainty about motor fuel use in future, the instrument constituency extended well beyond the transport subsystem to include actors from public health, environmental and urban planning subsystems. The long arc of transport infrastructure finance in both Australia and the US thus reveals a diffusion of instrument constituency composition that parallels the engagement with policy outcomes across subsystems. But, as will be shown, differences in institutional entrenchment influence both the nature and extent of authority needed to adapt instruments to evolving conditions.

We compare different ways in which Australian and United States transportation subsystems have applied fiscal instruments, based upon the political accommodation that was reached between the instrument constituency and subsystem actors in the epistemic community and the advocacy coalition. Both nations have experienced volatility and unpredictability in the revenues collected by fuel excise taxes. This uncertainty has triggered reassessment of policy instrumentation, but led to different actions within each subsystem.

In the United States, transport infrastructure has long been financed directly by the taxes collected on fuel, tyres and vehicle sales. These funds have been largely segregated from other public revenues (Wiener, 1992, p. 35). The economic rationale for making this fiscal instrument exclusive to transportation was that such infrastructure ought to be paid for directly by those who used it. The political rationale was that a new tax would be more popular if those paying it perceived a linkage between the cost of the excise tax and the benefit of new roads, as guaranteed by the hypothecation of tax revenues. This prescription for insulating instrumentation from politics blended economic efficiency, fiscal equity and a margin of safety from the darker impulses of political patronage. Instrument constituencies have proposed similar mechanisms of fiscal insulation from ordinary government spending in the revenue mechanisms of local public authorities operating ports, sports stadiums and public transportation. (Walsh, 1978) They have done likewise on the expenditure side by creating indexation mechanisms for setting social policy benefits, such as public pension payments. (Weaver, 1988)

During the launch of large-scale government spending on transport infrastructure, instrument constituency proposals sought to segregate fuel taxes from the wider politics of budget making and public expenditure. In Australia, such a formula for segregating the public revenue stream was initially adopted but was never entrenched and yielded very different outcomes (Clark, 1988). These differing approaches to policy instrumentation provide a good opportunity to assess the influence of institutional context on instrument constituency engagement with policy adaptation efforts over time. As will be shown, efforts to adjust policy have differed considerably depending on whether or not an instrument constituency found itself politically insulated, but also isolated, by the institutional context for transportation finance.

During the twentieth century, public spending on transport infrastructure was often justified by the claim that fuel excise tax revenues would fully offset the cost of highway infrastructure. While that equivalence may never have been entirely accurate, the evidence for anomaly (i.e. the inability of excise tax revenues to meet the costs of maintaining and upgrading transport infrastructure) has become incontrovertible during the twenty-first century. Both Australia and the United States have seen erosion of fuel excise revenues, generating the legitimacy deficit that Hall identified as a trigger for policy experimentation
and calls from both epistemic communities and advocacy coalitions for policy instrument change that Hall’s model predicts. Yet elected US officials have maintained existing instruments despite their dwindling effectiveness; their Australian counterparts tried to adopt new fuel tax instrument. The US resistance to change, and its relationship to the entrenched instrument constituency, will be examined in the next section, followed by an examination of Australia’s experiences and different trajectory. Australia’s absence of entrenched instrumentation will be shown to coincide with an openness to adaptation from the instrument constituency. The implications of how instrument constituencies can affect policy change will then be considered in the article’s conclusion.

2. US transportation finance: the legacy of instrument entrenchment

In the United States, an instrument constituency succeeded in legitimating the exclusive connection between government’s mobility expenditures and its revenues. Most US motor fuel taxes do not reach public treasuries unencumbered. Instead, fuel taxes, at national and state level, are mostly segregated into transportation ‘trust funds’, a policy instrument that embeds a legal, and often a constitutional, obligation to spend the accumulated revenue exclusively within the policy subsystem. This entrenched and durable fiscal structure has exerted a powerful influence. Transportation became sheltered from ‘normal’ budgetary politics where policy subsystems competed fiercely for scarce public resources, an advantage that the instrument constituency took credit for.

The rationale for taxing motor fuel to fund road building was conceived by American road engineers working within the early twentieth-century bureaucracy. This nucleus of an instrument constituency gathered support and membership from automobile manufacturers, oil and tyre companies and automobile service clubs. They convinced elected officials in geographically large, but sparsely populated, states that fuel taxes could enable the public’s desire for paved roads with limited electoral backlash. Oregon adopted a dedicated fuel tax in 1919; Colorado and New Mexico followed. By 1930, a majority of states had adopted dedicated fuel taxes. Burnham (1961, p. 445) concluded that: ‘… it was possible to identify the principal carriers of the gasoline tax contagion; they were principally, and often exclusively, state highway officials.’ This instrument constituency created an extreme rarity in America: a politically popular tax.

The US federal government introduced a one cent per gallon fuel excise in 1932. But instead of restricting the spending on road building as states had done, funds were used to reduce deficit spending during the Depression. Federal fuel taxation accounted for 7.7% of total federal tax collections in 1933 (Lowry, 2015, p. 19). The federal fuel tax was increased to 1.5 cents per gallon and extended as a wartime measure during the 1940s.

Highway beneficiaries (e.g. automakers, construction contractors and oil refiners) in the instrument constituency mobilized ‘anti-diversion’ campaigns that pressed state legislators to formally restrict fuel taxes to road building. These campaigns succeeded in institutionalizing fiscal segregation through 15 state constitutional amendments, and via legislation in another 31 states (Dunn, 1981, 116). At the federal level, in 1956, Congress created the highway trust fund (HTF) as a repository for federal motor fuel, tyre and vehicle sales taxes, via enabling legislation for the National System of Interstate and Defense Highways. HTF expenditures could only go towards transportation, and required state governments to collect matching funds through segregated fuel taxes (Rose, 1990). Such multi-layered
fiscal restrictions to benefit the transport subsystem reveal a successful alignment of the three policy subsystem pillars that Béland and Howlett (2016) identified as necessary to attach instrument-based solutions to new problems.

Growing motor vehicle use, encouraged by infrastructure investment, generated increased fuel taxes from the 1920s through to the 1990s (except during World War II). These revenues could generally only be spent on road infrastructure, which stimulated further motor vehicle travel. As the environmental and social costs of highways became contested, and resistance intensified, the instrument constituency embraced mobility alternatives: expanding trust fund eligibility to pay for railways, public transit, bicycle and pedestrian infrastructure. Co-optation of prior transportation subsystem adversaries revitalized the fuel tax instrument constituency and further bolstered support for segregated spending on transportation.

Conceptually, for policy options to become government programmes, epistemic communities, instrument constituencies and advocacy coalitions (see Mukherjee & Howlett, 2015) each need to endorse the proposed arrangement’s legitimacy. Epistemic communities specialize in problem identification, and must acknowledge that the proposed solution would address their diagnosed problem. Instrument constituencies validate policy tools as effective and must persuade responsible officials that such efficacy will deliver popular results. And advocacy coalitions need to articulate the rationale that could justify policy ratification, by confirming that the policy’s means and ends align with the subsystem’s predominantly shared beliefs. Each subsystem pillar affirmed the institutionalization of segregated fuel taxes in the US and Australia. First, the epistemic community of transport engineers endorsed fuel taxation as an appropriate solution to pay for a national highway building programme. An instrument constituency developed and refined the instruments of fiscal segregation in statutes and constitutional amendments to secure fuel tax revenues for the transportation subsystem. A bipartisan advocacy coalition espoused user fees as a legitimate and preferred solution to meeting America’s transportation needs. Ideas about mobility, finance and de-politicized expertise melded easily across subsystem participants.

Indeed, as public investment in highways and later public transport grew, direct and indirect beneficiaries coalesced into a powerful advocacy coalition. The legitimacy for public investment in transportation was epitomized by General Motors Chairman Charles Wilson in 1953, who testified before Congress ‘… what is good for the country is good for General Motors, and vice versa’ (Fogel, Morck, & Yeung, 2008, p. 84). The economic benefits delivered by 77,000 km of Interstate Highway generated political support in almost every corner of America’s now ubiquitous ‘sprawl’ (Goddard, 1994, p. 171; Squires, 2008).

But despite this robust twentieth-century performance, the risk of relying on fuel tax revenues became apparent after the global financial crisis of 2008, when transportation activity dropped precipitously (Goetz, 2011). In addition to the fluctuation in US, motor fuel tax collections illustrated in Figure 1, below, changing technical and demographic trends raised doubt within the policy subsystem about whether abundant motor fuel tax revenues would ever return.

Figure 1 illustrates fuel excise tax revenues for the US from 2004 through 2013.¹ Fuel tax collections broke from their rising trend in 2007 and their subsequent fluctuation has contributed to the shortfalls that spurred reconsideration of policy instruments.

¹Due to limits in data availability, we present the mix of excise taxes on gasoline (petrol) and diesel fuel that were reported by national government public accounts. These are gross tax revenues, and do not reflect any subsidy payments or tax rebates that might be in place to offset tax collections.
Tax revenues will be further depressed by increased fuel economy standards, which rise from 35.5 miles per gallon in 2016 to 54.5 miles per gallon by 2025 (National Highway Traffic Safety Administration, 2011). Even if these regulations do get scaled back during the Trump administration, the growth in electric vehicles, of which more than two million were operating worldwide in 2016 (International Energy Agency, 2017), will reduce fuel tax collections. The alignment between vehicle travel, fuel taxation and public spending on transport infrastructure is thus being disrupted. Demographic change is also evident as fewer young Americans are obtaining driving licences and more are residing in urban centres where automobiles aren’t necessary (Sivak & Schoettle, 2012). These and other shifts such as new information technologies and telecommuting are seen as contributing to a peaking and then decline of vehicle miles travelled per capita in recent years – a phenomenon commonly referred to as ‘Peak Car’ (Kuhnimhof, Zumkeller, & Chlond, 2013). This combination of events created significant funding shortfalls from motor fuel taxes that eroded some of the instrument constituency’s legitimacy. Calls for instrument change then emerged. But new instrumentation, such as highway tolls or distance-based road pricing raised the question of whether new revenue should retain the special status that had exempted fuel taxes from budgetary politics. These deliberations over replacing motor fuel taxes reveal the effects of an instrument’s institutionalization on an instrument constituency. As will be shown in the following section, while subsystem demands for instrument change have grown, the institutional constraints that were previously embedded by the instrument constituency subsequently require adjustment decisions to be taken well beyond the policy subsystem.

3. Considering instrument change: America’s unresolved search for a fuel tax adjustment

To date, attempts to adjust fuel tax instruments in the US have been stymied by the institutionalized constraints on fuel taxes and infrastructure spending. The instrument constituency’s logic for fiscal efficiency, policy effectiveness and political legitimacy had become
‘baked into’ the laws authorizing fuel taxation, and in some cases into state constitutions as well. As long as the instrument configuration was not changed, the understandings behind them could remain unexamined. But for any adjustment to occur, epistemic communities and advocacy coalitions well beyond the transportation subsystem would have to re-engage, thus exposing the privileged fiscal position of transportation infrastructure to contestation.

Among the advocacy coalitions that engage in America’s domestic policy deliberations, the legitimacy of exempting transportation trust funds from taxation debates had eroded considerably by the turn of the century. Instead of being understood as a user fee to be protected by bureaucratic stewardship, fuel taxes became politicized as just another instrument used by ‘big government’, and thus anathema to those against high(er) taxes in principle.

Evidence of this eroded political insulation emerged when the US Government last increased the fuel tax rate in 1990. Since taxes were collected on volume, (i.e. cents per gallon purchased) rather than as a percentage of the fuel price, an inflationary gap emerged. When the Bush administration sought a five cent per gallon increase, the measure was attacked as betraying the 1988 election promise of ‘no new taxes’.

After President Bush’s defeat in 1992, increasing the fuel tax came to be seen as a ‘third rail’ by many American politicians, meaning that touching the issue would cause a severe electoral shock (Hsu, 2010). Although President Clinton obtained a four cent increase in 1993, it was earmarked for deficit reduction, further eroding the political insulation of fuel taxes being a ‘user fee’. Since 1993, there has been no further change, limiting the HTF’s fiscal efficacy.

The risk posed by declining instrument performance was illuminated by the 2007 Mississippi River bridge collapse on Interstate Highway 35 in Minneapolis, Minnesota that took 13 lives and caused 145 injuries. (Subramanian, 2008) Congress responded by creating a National Surface Transportation Infrastructure Financing Commission. This initiative connected epistemic communities concerned about infrastructure (e.g. civil engineering, construction management, transport economics) with the instrument constituency that legitimated fuel taxation and transportation trust funds. The resulting recommendations met Hall’s definition of second order policy change, proposing both instrument adjustment and substitution.

The Commission recommended raising the federal motor fuel tax by 10 to 15 cents per gallon, and indexing these rates to inflation. Their report warned that the transportation trust fund would soon be unable to fund infrastructure spending due to inadequate collections. Rather than seeking ongoing fuel tax rate increases, the Commission proposed replacing fuel taxes with a ‘mileage based direct user fee’ for driving on America’s roads (National Surface Transportation Infrastructure Financing Commission, 2009, pp. 198–202).

The Commission justified instrument replacement by forecasting that by 2035, the inflation adjusted revenues from motor fuel taxes would decline between 25.5% and 41.8% compared to 2008, an amount which was already insufficient to meet trust fund spending commitments (Ibid., p. 47). The Commission interpreted this revenue shortfall to be a serious transportation problem, reproducing the institutionalized connection between user fees and infrastructure finance existing in this policy subsystem.

An instrument constituency of major road agencies and researchers endorsed the proposed instrument substitution. Those seeking to maintain the auto dominant mobility paradigm supported road user charging as a new means to advance established goals. But there was no easy path through the intersecting policy subsystems that would have to agree
on adopting a new instrument. To date, the institutional change needed to substitute fiscal instruments has not occurred.

Instead, new road user fees have been disparaged and rejected by advocacy coalitions committed to smaller government. And since no other nation has adopted road user charging on all major highways, the political risks appeared high. The consequence of existing infrastructure failing thus appeared less threatening than the opprobrium arising from a new tax whose collection would require tracking every car’s road use. These recommendations for instrument change reached Congress, when the Republican majority was relying on the ‘Tea Party’ faction that fiercely opposed both tax increases and more active government. The Commission’s report thus became ‘dead on arrival’ at the US Capitol.

Disunity among experts, advocates and instrument constituency members within the transportation subsystem has stymied proposed instrument changes. Instead of adjusting or replacing the fuel tax, Congress has instead transferred general tax revenues into the transportation trust fund. But this mechanism to avoid instrument change has only deferred the problem of deficit financing, which has grown along with the gap between fuel tax revenues and infrastructure expenditures. The Congressional Budget Office (CBO) has projected increasing shortfalls if programme outlays continue as planned and motor fuel tax receipts do not increase. The growing gap is illustrated in Figure 2 below.

CBO calculated that $41 billion of general tax revenue was transferred to highway programme expenditure between 2008 and 2013 and notes that another $53 billion in general revenues (CBO, 2013, p. 3) would be needed to meet the trust fund obligations that have been made under approved transportation spending commitments. CBO notes that revenues from fuel excise taxes are predicted ‘to grow very little in coming years’ (Ibid., p. 2).

These deficit projections have proven conservative, as Congress has actually transferred $62 billion from the Treasury’s general fund into the trust fund since 2008. (Lowry, 2015, p. 5) One estimate placed the cumulative fiscal shortfall from motor fuel tax collections, compared to transportation infrastructure expenditures, at $169 billion by 2014 (Kelly, 2015). The twentieth-century automobility paradigm that flourished under institutionalized
fuel taxation thus appears increasingly compromised by that instrument’s simultaneous endurance and obsolescence.

4. How Australian transportation finance instruments have adapted through normal politics

Australia offers an opportunity to compare the dynamics of policy change in a context where an instrument constituency did not entrench the fuel tax as an institutionalized cornerstone of transport finance. Australia has long taxed motor fuel similarly to the US, at rates well below Asia and Europe. But in Australia, fuel taxes were rarely segregated for transportation infrastructure spending. The instrument constituency behind Australian motor fuel taxes has played a different role because beliefs regarding taxation kept the mechanisms for collecting and distributing public revenues mutable in contrast to the US. Australia also has a relatively large epistemic community supporting public transport, due to the presence of large commuter rail networks and higher patronage levels in its cities. This has facilitated a more balanced transport (less auto-centric) politics, despite the strength of the auto’s modal growth coalition.

In Australia, fuel tax instruments were adopted based on an initial objective similar to the US, generating a new stream of public revenue from road users. But the principle of identifying fuel taxes as a user fee that should be treated differently than other taxes was never institutionalized. Thus, fiscal instrument settings on both revenue collection and expenditure remained open to adjustment through normal politics and experienced ongoing influence from broader deliberations about fiscal relations between national and state governments during the twentieth century. With policy implementation fully exposed to fiscal politics, the instrument constituency played a different role within the transport subsystem. Australia’s instrument constituency could not consistently claim to have created a political trump card that would outstrip competing fiscal demands from other subsystems.

Fiscal contention did not only occur among subsystems, but also between levels of government, since Australia’s transport infrastructure development was subject to jurisdictional conflict between the national government, which collected tax revenue, and state governments that had constitutional responsibility for building and maintaining roads. Between 1931 and 1959, Commonwealth fuel tax revenues were mostly insulated from claims by other subsystems through a fiscal formula that transferred funds to state governments based on the number of registered motor vehicles (Clark, 1988). While Australia’s instrument constituency had initial success in establishing this linkage between fuel tax distribution and road use, the administrative agreement’s informal status left the instrument politically exposed in subsequent rounds of Commonwealth – state fiscal negotiations.

As a result, between 1959 and 1982, the linkage between fuel tax collections and transportation spending became attenuated as federal taxes were transferred to state governments through a succession of inter-governmental accords. From 1974, the Commonwealth has designated national highway funding for road networks that were previously managed exclusively by the states (Lee, 2010, pp. 328, 329). This administrative structure exerted a divisive effect on the instrument constituency as transportation bureaucrats in Canberra and the Australian states engaged with one another from adversarial positions representing their respective governments. These negotiations yielded a flexible approach to policy implementation that began by identifying mutually acceptable infrastructure projects within
state road networks, then specified minimum levels of state spending to build these roads, and finally formalized these commitments into a funding agreement that would trigger the transfer of federal fuel tax revenues.

During the 23 years that this fiscal policy was pursued, states increasingly came to view the federal government’s attempt to influence their transport spending through fuel tax allocation negotiations as an encroachment upon their constitutional prerogative. Such jurisdictional conflict served to polarize the instrument constituency and constrained any attempt to entrench a funding formula. Aside from a small funding stream allocated through the Australian Bicentennial Road Development (ABRD) trust fund established in 1982, fuel taxes were not obligated to transport infrastructure in the following decades (Australia Fuel Taxation Inquiry, 2001). While tension grew between governments over how to allocate fuel tax revenues, the instrument constituency remained resolute in resisting any shift in expenditure from highways and towards rail, especially for inter-city transportation. As in the US, improvements to the Australian interstate highway system retained top priority. Those within the transportation subsystem advocating high-speed rail investment were effectively sidelined (Paris, 1992).

Figure 3 below depicts the federal fuel tax revenue collections in Australia between 2004 and 2014. Australian tax collections have been converted to US dollars to control for currency value fluctuations. Australia’s excise tax collections from fuels show an increase through 2009, and then level off after 2010. Like the US, Australia has seen an erosion of fiscal efficacy in its fuel taxation instrument, although this occurred via a different path which highlights the Australian openness to instrument adaptation. Australia’s diminished fiscal capacity was triggered by a policy instrument change at the start of the twenty-first century.

In 2001, the Howard government ended indexation of Australia’s fuel tax, after public discontent about the rising cost of fuel had become an election issue in Queensland and Western Australia (The Daily Telegraph, 2001). Howard’s de-indexation decision was estimated to have cost Australia’s treasury $2 billion annually through 2008, rising to $5 billion a year by 2012 (Davies, 2012; Smith, 2008). But this instrument adjustment helped to keep the Howard government in power for another six years.
Without the fiscal segregation of fuel taxes, this reduction in revenue was not particularly noticeable in the transport subsystem, and instead diffused widely across the Australian federal budget. The transport subsystem was thus not mobilized to advocate for raising fuel taxes. Differences therefore emerged between the composition of both the instrument constituency for segregated fuel taxes, and the advocacy coalitions that support them, in Australia and the US. These are shown in Figure 4.

The lack of a broader base to the instrument constituency in Australia, and the lack of bipartisan political support and automobile manufacturers or oil companies within the advocacy coalition weakened the prospects for segregated instruments. Indeed, the automobile manufacturers seemed more focused on the decline in industry support that has since led to the impending closure of all Australia’s car manufacturing plants, making them a very weak voice in national politics. Without a HTF that could ‘go broke’ there was also no focusing moment that would mobilize the Australian policy subsystems as revenues declined without indexation. The rise of sustainability agendas in Australia, including elements of the sustainable mobility paradigm (Banister, 2008) meant there were also increasingly sophisticated opponents to segregated fuel tax instruments in the bicycle and public transport advocacy groups that had not been co-opted by the instrument constituency, as in the US.

Mr Howard’s successors recognized that any return to indexing fuel taxes would produce a visible increase in petrol prices at the bowser (in Australian parlance) without generating any noticeable spending on transportation infrastructure. This was a recipe for generating political blame, with little opportunity for credit claiming. Proposals to reinstate indexation and restore the real value of fuel tax revenues were thus avoided by subsequent governments fearing a political backlash (Barnes, 2005) until the austerity budget of the Abbott government in 2014.

When tax collections from motor fuel sales in Australia fell behind inflation after de-indexation, as reflected in Figure 3 above, government spending on roads, and other transport infrastructure, also languished. Over time, automobile service clubs within the instrument constituency...
constituency mounted a protest campaign against inadequate government spending on road infrastructure (Australian Automobile Association, 2013). Meanwhile, the epistemic community of transport economists weighed in against the de-indexation, claiming that a shrinking tax in real dollars had encouraged drivers to waste fuel in less efficient vehicles and irresponsible travel behaviour (Burke, 2013). The impetus to recalibrate fuel tax instrumentation thus originated as much from outside the instrument constituency as from within it. When the Liberal–National coalition ousted Labor as the national government in 2013, a window for policy adaptation was opened.

The Abbott government included fuel tax re-indexation in its 2014 budget, but went beyond instrument adjustment in an attempt to manage potential political fallout from a ‘tax grab’. Fuel tax re-indexation was paired with a new instrument that would segregate the new revenues into a ‘Road Funding Special Account’ that could only be used on new infrastructure projects (Australian Taxation Office, 2014). This package of instrument change was supported by highway interests across the transport subsystem, including the Australian motoring lobby. By creating a formal linkage between fuel tax collection and road building, the Abbot government sought to nurture the linkage between road use and infrastructure finance that had insulated fuel taxation from political conflict in postwar America. This attempt at managing political risk was not foolproof, however, as the environmental and urban advocates saw nothing good in committing user fees to more highway building. The epistemic community long opposed to automobility and the advocacy coalition that represented them, given voice in Federal Parliament by the Australian Greens party, saw an opportunity to improve policy outcomes if a lack of funding availability for Abbot’s roads programmes instead meant managed curtailment and decline in road investment.

The Greens resolutely opposed the Abbot government’s instrument adjustment on the core belief that building more highway infrastructure was unsustainable. While the Greens did favour increasing taxes on motor fuel, they rejected creating an instrument to dedicate these additional revenues to spending only on highways. The Greens thus refused to support enabling legislation which would have to pass the Australian Senate. This legislation was needed to create the fund where the re-indexed tax collections would be segregated (Taylor, 2014). While legislative gridlock had been enough to stymie instrument change in the United States, policy adjustment was not sidetracked by political conflict in Australia.

Despite lacking the votes needed to pass the necessary enabling legislation in Australia’s Senate, the Liberal–National government used its authority to unilaterally increase motor fuel taxes via regulation in November 2014. This executive action required Parliamentary approval of enabling legislation within 12 months, otherwise the Commonwealth of Australia would be obligated to return the funds collected through higher taxes to the companies that had sold the fuel.

Such an instrument adjustment might appear to have exposed the government to political fallout, by courting blame for unilaterally raising taxes. But in reality, the fuel tax revenues accumulating in limbo with no expenditure began to put increasing pressure on the opposition parties to support enabling legislation for both the tax hike and the fiscal segregation. If the opposition blocked instrument adjustment, a growing accumulation of tax revenue would have been returned to the fuel sellers. The Greens and Labor parties were wedged, in Australian parlance. The risk of blame for providing a huge financial windfall to multinational oil companies instead of using public funds to build new roads proved to be too
great for the more pragmatic opponents of fuel tax adjustment. Labor leader Bill Shorten explained his party’s willingness to support the Abbott government by noting

… between giving money to oil companies and putting money back into Australian roads, generating jobs and confidence, it is clear which way Labor has to go … If Labor didn’t compromise … all the money that Australian motorists had paid would go back to oil companies. (Conifer, 2015)

Abbott was replaced by his own party as leader in mid-2015 by Malcom Turnbull who promoted a more balanced pro-public transport agenda. A Competition Review that the Abbott government commissioned had reported in March and strongly advocated road user charging, as most economists generally do (Harper, Anderson, McCluskey, & O’Bryan, 2015, p. 38). The new Turnbull government was forced to respond. It found itself lobbied by a new constituency for instrument substitution, which had quietly won over a greater number of key organizations to support road user charging. Critically, the Australian Automobile Association, representing all the state car clubs (the nation’s biggest membership clubs on some measures) locked in to support and vocally advocate for instrument substitution. By November 2015, the Turnbull government announced it was ‘accelerating’ work with the states on introducing distance-based road user charging for heavy vehicles, and exploring the options for rolling it out across the entire vehicle fleet (Treasury, 2015, p. 5).

While Australia succeeded in advancing instrument change to deliver increased highway in the short term, the reliance on new revenues from fuel taxation leaves a challenge of adjusting to the decreased motor fuel consumption in future. Australian vehicle fuel efficiency standards are likely to converge with higher international levels, after the end of domestic motor vehicle manufacturing in 2016–2017 when the Australian market will be supplied through imports. As in the United States, vehicle efficiency improvements will put ongoing downward pressure on fuel consumption, and associated tax revenues. Should fuel tax collections continue to decline in real purchasing power, or in absolute amounts, the challenges faced in the US are also likely to constrain the fuel tax instrument’s efficacy, and thus trigger another search for adjustment.

5. Assessing the instrument constituency’s role in policy change

In funding their twentieth- century transportation infrastructure, Australian and US instrument constituencies fashioned two demonstrably differing relationships between fuel tax revenue and spending on transportation. These differences rested upon distinctive relationships between experts, advocates and technocrats in each nation’s policy subsystems. In the US, the close linkage between taxation and spending instruments that was institutionalized in legislation and even in some state constitutions, insulated the instrument constituency that had created motor fuel excise from wider politics. As long as the revenues could cover the costs of delivering infrastructure, politics was minimized while users paid for their mobility. Once the trust funds went into deficit, however, this fiscal structure served to concentrate the visibility of revenue shortfalls. This magnified the impetus for transport subsystem actors to reopen the fiscal arrangements that had been inherited from the instrument constituency many decades earlier. And to the extent that the fuel tax instrument was judged to be irrevocably impaired from meeting future infrastructure maintenance and development needs, policy actors proved willing to look beyond the instrument constituency’s original prescription and propose substituting a distance-based user fee. But the
wider policy and political universe proved unwilling to extend any privileged fiscal position that had previously accrued to transportation, and policy change then became inhibited by a wide ranging political gridlock.

Conversely, Australia’s nearly complete absence of a formal link between fuel tax collections and transportation spending created an incentive for politicians in government to work with the instrument constituency and embrace a new mechanism to earmark funds for road building and thus justify collecting additional public revenue. The Abbot government pursued new instrumentation and linked it to adjustment of existing taxes in transportation as a way to navigate the political risk of policy change. The Turnbull government has since made tentative steps to consider distance-based charging, with support from the wider instrument constituency.

Australia and the United States have followed very different paths of developing policy instruments, yet they have recently arrived at similar fiscal mechanisms to support their transportation programmes in the early twenty-first century. As we have shown above, the fiscal configuration of how fuel taxes have been collected and distributed has created important organizational differences in the ways that transport subsystems in both Australia and the United States relate to the wider policy universe. This variation is reflected in the roles played by instrument constituencies in creating, and maintaining, support for the motor fuel tax as the principal mechanism for funding transportation infrastructure.

The variations in how policies have been reconsidered, and how their enabling fiscal instruments were then either adjusted or left in place, offers evidence that the relationship between instrument constituencies, advocacy coalitions and epistemic communities, as articulated by Béland and Howlett (2016) can help to explain policy instrument change over time. These relationships have been mediated by the institutionalization of policy instruments, which encouraged the US to recognize the tax revenue shortfall early on, but then constrained adapting to change. And Australia’s lack of fiscal institutionalization explains why Australia’s federal government was drawn into adding a fiscal segregation instrument to the mix when they eventually restored fuel tax indexation, and why their political opponents found it impossible to resist instrument change once new public revenues began to flow from higher tax rates.

Our analysis suggests that the US transport subsystem will continue to explore alternatives to the motor fuel tax, primarily because the long-standing fiscal segregation of transport spending will magnify the impacts of a revenue shortfall on the modal benefits coalition. The engagement of transit, bicycle and transportation research advocates with the US fuel tax instrument constituency has added a broader base and neutralized other members of the transportation subsystem who might otherwise be apathetic or oppositional. But those same trust fund institutions also gave the instrument constituency a structural challenge in pursuing substitution, by requiring political accommodation with policy actors outside the fiscal boundaries of the trust fund, where competitive pressures and budget battles are much more intense.

The absence of instrument institutionalization has made it relatively easy for Australia to implement a recent reset of its fuel tax and transport spending arrangements. The return to indexing fuel tax rates was initiated through government’s political initiative, with the legislative approval needed to formalize this change secured by putting opposition parties in an indefensible position of returning tax revenues to multinational oil companies in the event they resisted instrument change. Recent mobility outcomes in the US and Australia
continue to provide instrument constituency with an ongoing opportunity to adjust fiscal policy because trends in transport energy efficiency and fuel source substitution are likely to produce further anomalies of the kind that triggered this recent round of instrument reappraisal.

A more ambitious test of the role that instrument constituencies play in subsequent policy adjustment can thus be anticipated from the effects of demographic, economic and environmental impacts on transport finance and infrastructure programmes. Gilbert and Perl (2010) have suggested that over the long run, climate and energy threats could permanently reduce the demand for motor fuels. This trend has been reflected by the reduced level of vehicle miles travelled (VMT) in the US and increases in public transport usage since 2008. Higher fuel efficiency standards for motor vehicles are part of a larger trend in which US transportation policy has begun to address conservation goals such that ‘… concerns over oil dependence and climate change mean that national policy is going to increasingly focus on reducing gasoline consumption, making reliance on a gas tax unsustainable’ (Schank & Rudnick-Thorpe, 2011, p. 3). In addition to the continued adoption of elements of the sustainable mobility paradigm (Banister, 2008), there are two other key challenges for highway-focused segregated tax instruments: the rise of a new urban economics paradigm focused on high-density downtown living supported by high quality transit, instead of highway-led sprawl (Glaeser, 2011); and, the broadening of the transportation subsystem to include actors such as increasingly large and professional bicycle lobbies and the physical activity and preventative health sector (Cole, Burke, Leslie, Donald, & Owen, 2010). Given their focus on more economically, socially and environmentally sustainable outcomes, these groups are less likely to be co-opted into an advocacy coalition for segregated instruments that primarily support road development, unless that instrument is conceived of in ways that meet their objectives (i.e. effective congestion charging, not low fuel taxes or basic road user-charges). Assessing future attempts at policy change in the face of such trends should offer considerable opportunity to explore the ways in which instrument constituencies can adapt their techniques and adjust their tools to address the fiscal challenges of maintaining mobility.

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