
Article:
Marsden, G orcid.org/0000-0003-3570-2793 and Reardon, L orcid.org/0000-0001-7638-6702 (2017) Questions of Governance: Rethinking the Study of Transportation Policy. Transportation Research Part A: Policy and Practice, 101. pp. 238-251. ISSN 0965-8564

https://doi.org/10.1016/j.tra.2017.05.008

Questions of Governance: Rethinking the Study of Transportation Policy

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Abstract

This paper critiques the state of the art approaches to studying transportation policy. It does so through analysing 100 papers sampled from the two leading policy journals in the transportation literature. On applying two different frameworks for understanding policy, the review finds that only 13% of papers consider specific aspects of the policy cycle, that 60% focus on 'tools' for policy, and that two-thirds of papers did not engage with real-world policy examples or policy makers and focussed on quantitative analysis alone. We argue that these findings highlight the persistence of the technical-rational model within the transportation literature. This model, and the numerous traditions and disciplines that have fed into it have an important role to play in developing the transportation evidence base. However, we argue there are important questions of governance; such as context, power, resources and legitimacy, that are largely being ignored in the literature as it stands. The substantial lack of engagement with governance issues and debates means that as a field we are artificially, but more importantly, disproportionately generating a science of applied policy making which is unlikely to be utilised because of the distance between it and the realities on the ground. The paper identifies analytical approaches deployed readily in other fields that could be used to address some of the key deficiencies.

Key words: governance; policy process; state of the art; transportation; technical-rational model

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Abstract

This paper critiques the state of the art approaches to studying transportation policy. It does so through analysing 100 papers sampled from the two leading policy journals in the transportation literature. On applying two different frameworks for understanding policy, the review finds that only 13% of papers consider specific aspects of the policy cycle, that 60% focus on 'tools' for policy, and that two-thirds of papers did not engage with real-world policy examples or policy makers and focussed on quantitative analysis alone. We argue that these findings highlight the persistence of the technical-rational model within the transportation literature. This model, and the numerous traditions and disciplines that have fed into it have an important role to play in developing the transportation evidence base. However, we argue there are important questions of governance; such as context, power, resources and legitimacy, that are largely being ignored in the literature as it stands. The substantial lack of engagement with governance issues and debates means that as a field we are artificially, but more importantly, disproportionately generating a science of applied policy making which is unlikely to be utilised because of the distance between it and the realities on the ground. The paper identifies analytical approaches deployed readily in other fields that could be used to address some of the key deficiencies.

1. Introduction

Many different (often positivist-led) disciplines have made a contribution to the development of transportation studies, notably engineering, operations research, economics, psychology and mathematics (Allsop, 2006). Each can legitimately claim to have provided insights into the nature of 'the transportation problem' and the study of 'transportation solutions'. However, contributing to knowledge on 'what to do' in terms of transportation policy development, whilst clearly important, is different to understanding why the policies that are in place today are the way they are, how new policies get formulated and what can, rather than could, be implemented in real-world settings.

This paper reviews the state-of-the-art in the study of transportation policy. The paper explores the dominant modes of enquiry into policy within the field and what these say about how policy is understood, and knowledge of it contributed to, within transportation research. To do so, the paper analyses 100 research papers from the two most relevant (and leading) journals in the discipline aligned to this agenda, namely Transport Policy and Transportation Research Part A: Policy and Practice. The former states that its 'subject areas reflect the concerns of policymakers in government, industry, voluntary organisations and the public at large, providing independent, original and rigorous analysis to understand how policy decisions have been taken, monitor their effects, and suggest how they can be improved'. While the latter states that it contains 'papers of general interest in all passenger and freight

modes: policy analysis, formulation and evaluation; planning; interaction with the political, socio-economic and physical environment; design, management and evaluation of transportation systems.'

It is timely to conduct such a review of the field as it is increasingly recognised that, as the range of challenges facing policy makers grows and becomes more multi-level and cross-sectoral, decision-making becomes more complex (Anderton, 2010 and Banister et al., 2012). Coupled with this are substantial changes to the ownership and management of parts of the transportation system which may be accelerating with the advent of new mobility services (Shaheen and Cohen, 2013). Such changes mean that policy is becoming less something 'done by the state' and 'received by the system' and instead increasingly something which is a complex negotiation through networks of actors (Dudley and Richardson 2000). This more diverse and networked decision-making environment is now associated with the 'governance' of policy processes and areas (see Trieb et al., 2007 for further definition).

The complexities of policy making in practice matter to what happens on the ground. They matter right from the debates about what the nature of the problem is (Tennøy, 2010), to the selection of what information is deemed to be relevant (Gao et al., 2013), through to what might be selected for implementation. Even at this stage, as Neiemeier et al. (2012, 132) found in their study of climate change implementation, where policy alignment can be achieved in principle 'there are often vast disparities between the intent... and actual implementation'. Whilst it is possible to identify a number of authors asking questions around the policy process we demonstrate in this article that this is a very small minority and, we would argue, the field is therefore missing many critical advances in the understanding of policy which have been made elsewhere in political science.

It could be that questions of policy making are addressed in other areas of disciplinary focus. There is, for example, a strong tradition of studying regulatory economics and regulatory structures which would be under-represented in the two journals selected. Similarly, spatial policy might be equally captured in geography and regional studies facing journals. However, there has been a comparative lack of focus on transportation within other disciplines, such as urban planning and indeed political science, where questions of policy and governance arguably have a stronger tradition.[1] The study of transportation policy might therefore be considered to be spread thinly across different traditions, acting as a 'boundary object' (Star and Griesemer, 1989), and there is therefore a critical role for the transportation policy

[1] A search for 'transportation' within the Urban Studies journal for example, returns 14 results for research articles in the 2011-2015 period, four of which we would define as contributing to questions of policy and governance (as defined in section 2 of this paper). Over the same period, the Journal of the American Planning Association has 6 articles which specifically address transportation governance and a further 9 policy evaluations. Leading political science journals such as Political Studies and the Policy Studies Journal return even fewer results.

literature to capture and lead advances in the understanding of policy processes and implementation.

The review is structured around two policy frameworks; the policy cycle understanding of the policy process, and a taxonomy of policy components developed by Howlett and Cashore (2009). The first provides insights into the processes associated with policy, while the second allows for a nuanced understanding of the different elements that comprise 'policy'. These frameworks are, of themselves, an important element in advancing our reflections on the study of policy which itself can be interpreted and understood in a significantly more nuanced way than is currently the case. Our review identifies some important gaps in current research into policy, and we in turn identify an agenda for future research that, we argue, needs to more readily recognise issues of power, politics, context and legitimacy.

The paper starts in section two by explaining the two policy frameworks used here in more depth, while section three explains the methodology adopted. Section four presents the results of the review. We find strong evidence to suggest that transportation policy research is happening in the shadow of transportation policy; engaging with the technical 'what-ifs' of policy, but not the actual realities of policy processes, choices and their implications. Section five presents an analysis of the reasons for such findings; arguing that the technical-rational model that has been so embedded within transport studies is currently shaping the study of transport policy too, and in turn leaving important policy-related governance questions unpursued and unanswered. In section six we draw on insights from three well-tested theories (the multiple streams approach, advocacy coalition framework, and top-down/bottom-up implementation) borne out of the political science discipline to elucidate our argument as to where the discipline needs to re-double its effort in its understanding of policy. In section seven, we conclude by arguing that it is only through a holistic understanding and study of policy that the transportation field can be equipped to understand and tackle the most challenging issues of our time, such as transportation's role in addressing climate change, or moves towards automation, and in turn make the body of research on transportation policy advance our understanding of how to design more effective policy prescriptions and decision-support tools.

2. Two frameworks of policy

In order to determine the current state of the field in relation to policy research we first need to provide an informed interpretation of what 'policy' is. Here we draw on two understandings; one that relates to policy as process; the policy cycle, and another that draws out an understanding of the components of policy; Howlett and Cashore's (2009) policy taxonomy.

2.1 The policy cycle

The policy cycle 'has developed into the most widely applied framework to organize and systemize…research on public policy' (Jann and Wegrich 2004, 45). The cycle understands policy activity as consisting of five sequential stages. The first is agenda-setting, this stage 'is concerned with the way problems emerge, or not, as candidates for government's attention' (Howlett, Ramesh and Perl 2009, 92). Here it might be relevant to consider how and why agendas such as health and quality of life emerge (Reardon 2016). After agenda setting comes policy formulation which involves '…identifying and assessing possible solutions to policy problems or, to put it another way, exploring the various options or alternative courses of action available for addressing a problem' (Howlett, Ramesh and Perl 2009, 110). Far from being a process of optimisation, policies that get considered come from somewhere (Marsden et al., 2012) and are sometimes seen to be circling, waiting for opportunities to be deployed (Kingdon, 1986). Once a policy is formulated there is then a process of decision-making in which there are formal (and informal) deliberations over the alternatives drawn up in the policy formulation stage. This focuses on the more contested and multi-actor environment set out in the introduction. Once a policy has been decided on there is then a process of policy implementation; putting the decision into practice where compromise and commitment matter and where the assumptions of the planning stage may be challenged (Flyvberg et al., 2010). Then follows policy evaluation where there is an assessment of whether the policy has been successful and/or could be improved or indeed if it should be terminated. The terms of the evaluation, the resource commitment and the timescales for evaluation are all of concern here. It is not just an objective evaluation of a set of accepted outcome measures (Anable, 2016). This learning then feeds back into the policy process to create an ongoing cycle of policy development and activity.

Rather than utilising the whole policy cycle framework within a single study, research has typically developed around each stage individually, in turn indirectly providing reflections on the dynamics of the policy process as a whole. As a result, the policy literature has for a long time recognised that the policy cycle framework is too simplistic in practice, and in particular has discredited its assumption of policy as sequential in nature (Dorey 2005; Hill 2009, 143; Ryan 1996; Sabatier 1986). However the stages approach remains the go-to way of characterising research in policy studies, and in turn continues to provide a parsimonious way of conceptualising and operationalising the policy process. In turn, we do not wish to treat the policy cycle as a theoretical model of how policy is done, but rather we treat the policy cycle as a useful heuristic framework; as a way to map what aspects of the policy process are being analysed in transportation research; for example, is the discipline focused on decision making, the way policy is formed, or evaluations of policy?

2.2 Components of Policy

The second policy framework we use to complement the above is proposed by Cashore and Howlett (2007). This taxonomy is of value here because its key contribution is to the unpacking of what is meant by 'policy'. Rather than talk of the study of 'policy' in general terms, it is important to be more precise about what we are referring to. Policy is multi-faceted, and this taxonomy identifies the different aspects and elements of policy that can be under investigation when we refer to 'policy' (Table 1). Howlett and Cashore (2009) argue that 'policy' should be understood as consisting of a 'complex regime of ends and means-related goals (more abstract), objectives (less abstract), and settings (least abstract)' (Howlett and Cashore 2009, 38). The taxonomy therefore does not denote a policy process, but rather is a lens through which to identify the different aspects of policy potentially under investigation in 'policy' research.

Cashore and Howlett (2007, 536) identify *'goals'* as one aspect of 'policy'; these are the ultimate ends that underpin policymaking. Policy also consists of 'objectives'; these operationalise the goals, and policy also consists of 'settings' that 'specify what is required to operationalise the objectives in specific real-world situations', these 'settings' can also be understood as context-specific targets. While goals, objectives and settings relate to ends and aims, means and tools are also key aspects of 'policy'; policy consists of 'instrument logics' which refer to the norms that guide the enactment of policy; the 'mechanisms' refer to the types of instruments used to implement objectives; for example tax incentives; and the 'calibrations' refer to the way an instrument is operationalised in practice; for example whether voluntary or mandatory standards are imposed. Therefore while the policy cycle framework allows us to analyse the different parts of the policy process, Cashore and Howlett's (2007) taxonomy allows us to gain a more nuanced understanding of different aspects of policy in and of itself, and in turn unpack which of these components transportation policy research focuses on.

Table 1 Howlett and Cashore Policy Taxonomy (adapted from Howlett and Cashore 2009, 39)

Policy Content				
Policy Focus		High Level Abstraction	Programme Level Operationalization	Specific on-the-ground Measures
	Policy Ends or Aims	**GOALS:** What general types of ideas govern policy e.g. economic growth	**OBJECTIVES:** What does policy formally aim to address? e.g. reduction in congestion	**SETTINGS:** What are the specific on-the-ground requirements of policy? e.g. specific targets, such as 'increase travel speed by x percent'

	Policy Means or Tools	**INSTRUMENT LOGIC:** What general norms guide implementation preferences? e.g. welfare maximisation	**MECHANISMS:** What specific types of instruments are utilized? e.g. competitive infrastructure funding	**CALIBRATIONS:** What are the specific ways in which the instrument is used? e.g. peak pricing premium

Taking one of the author's own papers (Marsden et al., 2009) as an example; the paper examined the role of performance related incentives for local authority target setting. Through a combination of work with local authorities and theoretical model construction it addressed the likely impacts of different incentive structures on the ambition and breadth of local authority strategies. The work focussed on the calibrations of the approach proposed rather than seeking to explore other mechanisms or (instrument) logics which could have been deployed to achieve the same ends. By contrast, Lodge (2003) explored the reasons for divergent approaches to reform in the rail sectors of the UK and Germany. Whilst both countries were, in part, responding to EU directives to widen competition (the objectives of the reform), the overarching national goals regarding privatisation and the role of the state in transportation led to a very different search for solutions and from that flowed out quite different implementation logics and tools.

3. Methodology

The data used is gathered from a review of 100 articles published from 2011-2015 in Transport Policy and Transportation Research Part A (50 articles from each, see table 2). We accept that this approach bounds the search and does not fully describe the field of transportation studies as a whole. As stated at the start of the paper however, it would be expected that the state of art of studying policy processes would be being addressed in the two journals identified.

For each journal, from 2011 up to and including 2015, the second[2] article of the first issue published that year was selected, then the second article of the second issue, then the third article of the third issue, and so on up until the sixth article of the sixth issue. Because there are more issues published per year in Transportation Research Part A (nine on average), than in Transport Policy (seven on average), the method continued up to the ninth article of the ninth issue for the former, and started back at the first issue, seventh article for the latter. This yielded 45 articles for each journal. The cycle then started again for the final five articles from Transportation Research Part A, taking the first article from the first issue. Because Transport Policy does not

[2] The sample started with the second article rather than the first, because often the first article in an issue is not an original research paper.

consistently publish more than nine articles per issue, the final five papers from this journal were taken from article one of the fourth issue for each year. Special issues were included and where an issue didn't have a sixth article in the sixth issue for example, the next highest article (the fifth in this case) would be included in the sample instead. By article we mean full research article; introductions to special issues and editor introductions or comments at the start of the issue, were not included. It is hoped that this way of drawing the sample allows it to be as unbiased as possible, whilst also ensuring all years and issues are represented. The papers reviewed are listed in Table 2.

Table 2 Paper sample

Year	Journal of Transportation Research Part A	Transport Policy
2011	Mirabel and Reymond Vol. 45 (1) pp. 18-30 Guo and Wilson Vol. 45 (2) pp. 91-104 Condeço-Melhorado et al Vol. 45 (3) pp. 185-203 Wilton et al Vol. 45 (4) pp. 269-282 Cantos-Sánchez et al Vol. 45 (5) pp. 435-450 Bretschneider and Kimms Vol. 45 (6) pp. 523-539 Núñez-Sánchez Vol. 45 (7) pp. 653-666 Holguín-Veras Vol. 45 (8) pp. 802-824 Geroliminis and Sun Vol. 45 (9) pp. 966-979 Abrantes and Wardman Vol. 45 (1) pp. 1-17	Bhatta and Larsen Vol. 18 (1) pp. 13-22 Cox et al Vol. 18 (2) pp. 307-317 Marsden and Stead Vol. 18 (3) pp. 501-512 McNamara and Caulfield Vol. 18 (4) pp. 579-586 Gehlert et al Vol. 18 (5) pp. 685-694 McDonnell and Zellner Vol. 18 (6) pp. 825-835 Moore Vol. 18 (1) pp. 53-59 Walter et al Vol. 18 (2) pp. 373-381 Attard and Enoch Vol. 18 (3) pp. 544-553 Delbosc and Currie Vol. 18 (4) pp. 555-562
2012	Van den Berg et al Vol. 46 (1) pp. 12-21 Garrow et al Vol. 46 (2) pp. 255-268 Hellström and Nordström Vol. 46 (3) pp. 446-456 Börjesson and Eliasson Vol. 46 (4) pp. 673-683 Bell et al Vol. 46 (5) pp. 790-800 Shah and Brueckner Vol. 46 (6) pp. 938-953 Mishra et al Vol. 46 (7) pp. 1066-1085 Elias and Shiftan Vol. 46 (8) pp.1241-1251 Zhong et al Vol. 46 (9) pp. 1490-1505 Diana Vol. 46 (1) pp. 1-11	Legacy et al Vol. 19 (1) pp.8-16 Masiero and Maggi Vol. 20 (2) pp. 13-21 Metz Vol. 21 (3) pp. 20-25 Olsson et al Vol. 22 (4) pp. 29-35 Jiménez and Betancor Vol. 23 (5) pp. 34-41 Abou-Zeid and Ben-Akiva Vol. 24 (6) pp. 48-59 Bacache-Beauvallet and Janin Vol. 19 (1) pp. 57-62 Farag and Lyons Vol. 20 (2) pp. 82-92 Hamer et al Vol. 21 (3) pp. 71-84 Börjesson Vol. 22 (4) pp. 1-10
2013	Cui et al Vol. 47 (1) pp. 10-18 Francke and Kaniok Vol. 48 (2) pp. 25-30 Jones et al Vol. 49 (3) pp. 21-34 Hassan et al Vol. 50 (4) pp. 47-61 Arvidsson Vol. 51 (5) pp. 56-62 Weijermars and Wesemann Vol. 52 (6) pp. 64-72 Broome et al Vol. 53 (7) pp. 68-80 Baltas and Saridakis Vol. 54 (8) pp. 91-110 Arnott and Rowse Vol. 55 (9) pp. 89-110 Hadas and Laor Vol. 47 (1) pp. 1-9	Jeon et al Vol. 25 (1) pp. 10-21 Tillema et al Vol. 26 (2) pp.4-14) Haque et al Vol. 27 (3) pp.20-31 Laih and Sun Vol. 28 (4) pp. 42-50 Nowak and Savage Vol. 29 (5) pp. 38-45 Cravioto et al Vol. 30 (6) pp. 63-76 Canoquena Vol. 25 (1) pp. 61-80 Mackett Vol. 26 (2) pp. 66-72 Sun et al Vol. 27 (3) pp. 85-91 Litman Vol. 28 (4) pp. 2-10
2014	Yusuf et al Vol. 59 (1) pp.13-21 Justen et al Vol. 60 (2) pp.9-18 Paefgen et al Vol. 61 (3) pp. 27-40 Scotti et al Vol. 62 (4) pp. 39-53 Kwon and Lee Vol. 63 (5) pp. 56-66 Lin et al Vol. 64 (6) pp. 65-91 Odeck Vol. 65 (7) pp. 68-79 Jou et al Vol. 66 (8) pp. 88-99 Habib et al Vol. 67 (9) pp. 110-126 Arana et al Vol. 59 (1) pp. 1-12	Jou and Huang Vol. 31 (1) pp. 10-18 Tørnblad et al Vol. 32 (2) pp. 9-15 Tilahun and Fan Vol. 33 (3) pp. 17-25 Brunelle-Yeung et al Vol. 34 (4) pp. 21-28 Alam and McNabola Vol. 35 (5) pp. 42-49 Márquez et al Vol. 36 (6) pp. 46-52 Percoco Vol. 31 (1) pp. 55-60 Le Vine et al Vol. 32 (2) pp. 60-68 Barbot et al Vol 33 (3) pp. 65-72 Evans and Schäfer Vol. 34 (4) pp. 5-13
2015	Fishman et al Vol. 71 (1) pp. 17-30 Wadud Vol. 72 (2) pp. 16-26 Liddle and Lung Vol. 73 (3) pp. 31-38 Zhong et al Vol. 74 (4) pp. 44-58	Wu and Lin Vol. 37 (1) pp.11-19 Salling and Leleur Vol. 38 (2) pp. 8-18 Wang et al Vol. 39 (3) pp. 21-36 De Gruyter et al Vol. 40 (4) pp. 24-35

	Ayadi and Hammami Vol. 75 (5) pp. 51-60 Bernardo et al Vol. 76 (6) pp. 71-91 Gnann et al Vol. 77 (7) pp. 95-112 Nielsen et al Vol. 78 (8) pp. 113-123 Randrianarisoa et al Vol. 79 (9) pp. 65-83 Janić Vol. 71 (1) pp. 1-16	Xu et al Vol. 41 (5) pp. 42-49 Busscher et al Vol. 42 (6) pp. 42-51 Henao et al Vol. 37 (1) pp. 64-71 Delaplace and Dobruszkes Vol. 38 (2) pp. 73-85 Bergantino et al Vol. 39 (3) pp. 77-86 Siren and Sørensen Vol. 40 (4) pp. 1-7

Once the sample was collected, there was a double review process in which Marsden and Reardon each independently read and categorised the same 30 papers using both of the frameworks outlined in section one, comparing how each paper was categorised relating to each framework in order to check reproducibility and be clear on category definitions. Reardon then read and categorised the remaining 70 papers. For the policy cycle framework, the papers were categorised based on which stage of the five stages of the policy process they were addressing. It is process that is important here. If for example, a paper provides information on reasons for bikeshare membership in a particular city (Fishman et al 2015), this may be useful for policy makers to know when thinking about implementing a bikeshare scheme. However, if the paper does not think about the reasons why a bikeshare scheme was introduced in a particular way, or analyse whether it would be feasible for policymakers to act on the findings and implement them in practice, then this paper is not characterised as being about policy implementation, rather it is deemed not to be about a stage of the policy process at all. It provides information that could be used during a stage of the policy process, but is not about a stage. Taking another example, Justen et al. (2014) through a critique of the current status quo, argue that 'policy packaging' should be used by policy makers when policies are being created. Because the paper reflects on the challenges of policymakers being able to use the concept in practice, the paper is categorised as being about policy formulation; a policy stage.

For the policy components taxonomy, each paper was analysed with a view to understanding what aspect of policy it was concerned with. For example, Metz (2010) challenges the assumption that travel demand growth will continue in line with trends from previous decades and seeks to explain the reasons for some of the reductions in demand seen in the data. This article is therefore categorised as being about instrumental logics as it challenges the norms (in this case that travel demand will increase) that guide implementation preferences. As another example, Salling and Leleur (2015) provide a model for infrastructure investment based on a critique of existing investment models. This is categorised as looking at the mechanisms of policy (a model being a mechanism used to inform the policy calibration). Had the paper also involved a critique or exploration of the reasons for the use of the current investment models then it would also have been categorised as about instrument logics. If the paper also challenged the goals with which the models worked towards then the paper would also be categorised as about policy goals.[3]

[3] By way of further illustration we categorise Xu et al (2015) as discussing 'objectives', Tilahun and Fan (2014) as about 'settings', Mirabel and Reymond (2011) as 'calibrations'. We don't categorise any of the papers as being about 'goals' (see results) where such a paper would discuss the ends that policy works towards.

In order to complement the two policy frameworks and gain a more nuanced understanding of the literature and how researchers are arriving at their conclusions, it was also noted whether each paper:

i) described engaging policy makers in its research (either through including them in the research or discussing the findings with them);
ii) was based on an analysis of a real-world policy (as opposed to a hypothetical or modelled reality); and
iii) was qualitative or quantitative in its approach, or a mix.

4. Results

With regards to the stages model of the policy process, the review found that 87 percent of papers did not address any of the stages of the policy process (see Figure 1).

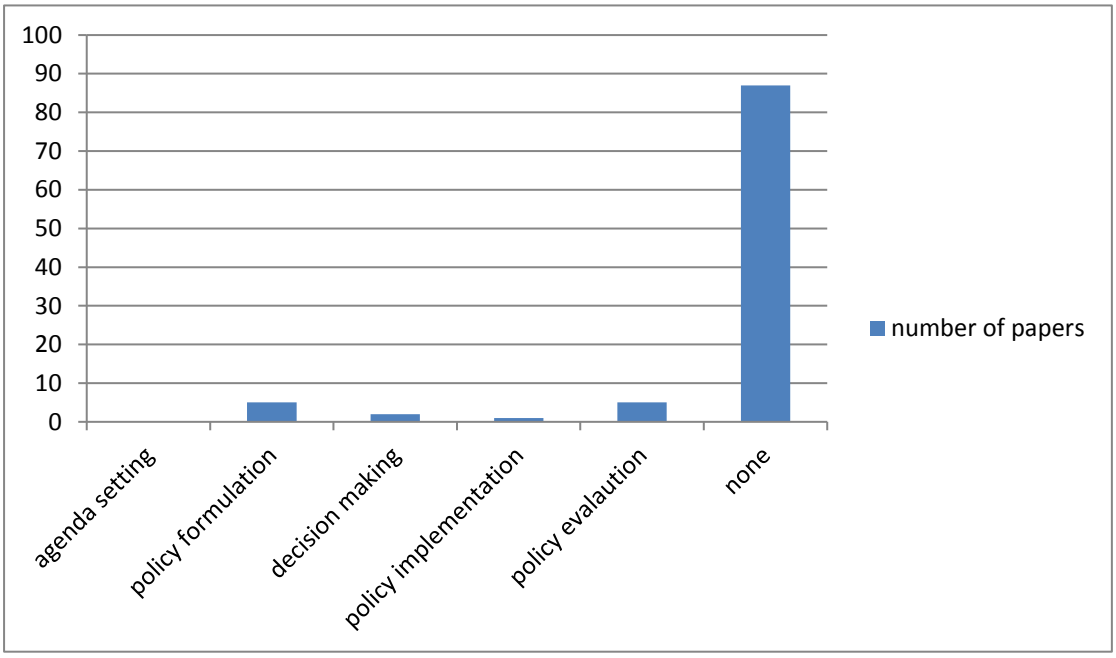

Figure 1 paper categorisation using stages approach

That is not to say that this majority were not generating important, policy relevant knowledge. For example, they provided analyses that may provide useful background information to policymakers such as evidence on the willingness to pay for tolls (Yusuf et al 2014) or they present a tool or method that could be helpful for decision making, such as a method to estimate the resilience of a transit network (Cox et al 2011). However, it is to suggest that they are not engaging with the governance challenges of policy in practice; they are not concerned with the processes of policy development.

Using the policy taxonomy categorisation we found that 63 percent of the papers were addressing some component of policy, while 37 percent were not. Of the papers that

were, we found the majority (60 papers)[4] focused on the 'means or tools' components of policy; the instrument logics, mechanisms and calibrations, with only four[5] focused on the 'ends or aims' of policy; the goals, objectives or settings (see Figure 2). This is perhaps unsurprising as it is of relevance to policy to consider better design of existing policies (e.g. changing parking management) as well as to look for new packages (mechanisms) where policy goals might not be being met. These are core elements of strategic planning processes and are the elements which best fit the existing modelling tools. However, such a distribution is to overlook the importance of goals, objectives and settings in providing the context within which any adjustment to what happens has to be made.

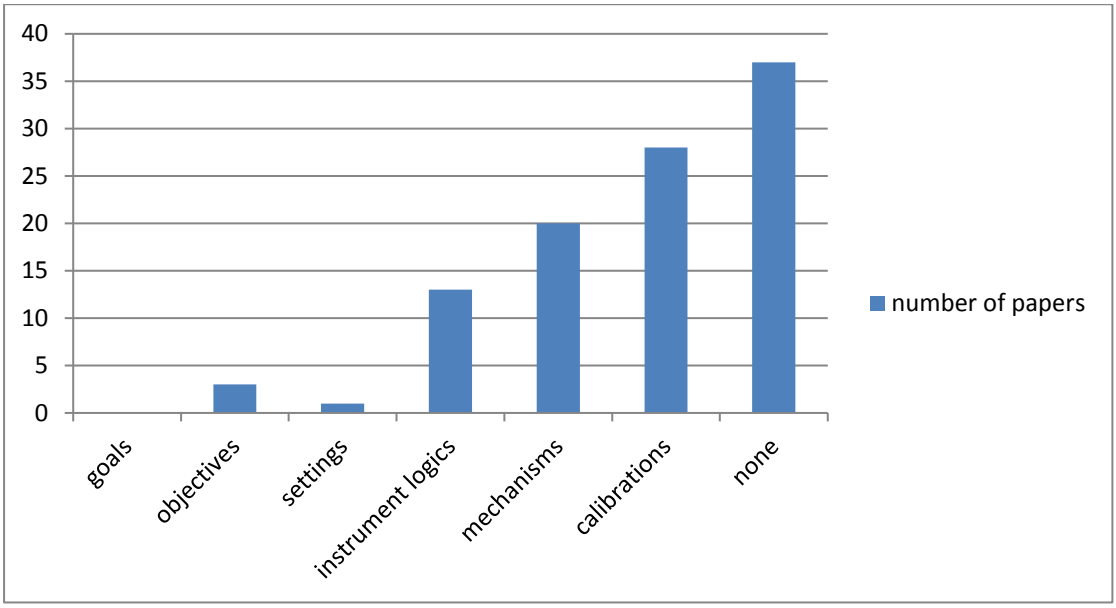

Figure 2 paper categorisation using Howlett and Cashore (2009) policy taxonomy

As with the stages categorisation, those papers that were not found to be addressing a particular component of policy were providing important contributions to knowledge that could be useful for policymakers, for example, a paper providing information on travel demand response in the light of fuel price changes (Kwon and Lee 2014) is providing useful information. However, they were not analysing a particular aspect of policy in and of itself.

Whilst Figure 2 is perhaps a reflection of the focus of planning practice, it is more concerning that 90 percent of papers did not engage policy makers in their research. For example, policymakers were not asked for their reflections on the feasibility of the strategies proposed in the paper (e.g. Tilahun and Fan 2014), the viability of a model proposed as useful for decision making (e.g. Janic 2015), nor were decision-makers interviewed in order to gain a deeper understanding of why a policy exists in its current form (e.g. Haque et al 2013).

[4] Two papers were categorised as addressing two elements, so are accounted for twice in the graph
[5] Two of these papers also addressed an aspect of 'means or tools' and are therefore double counted

Of the papers, 75 of the 100 did not base their analysis on engagement with real-world policy. For example, the paper may have been set in the context of a real-world policy; an idling fine in Taiwan for instance (Jou et al 2014), but then did not go on to interrogate the implications of that particular policy (the fine in situ), but instead modelled potential implications of different fine levels within a simulated environment, and thus the analysis is based on a hypothetical. Moreover, the papers that did look at real-world examples did not look across governance levels (with the exception of Legacy et al 2012, and to an extent Marsden and Stead 2011), but instead concentrated at one governance level, and typically (14 papers) on a scheme, project or tool (be this within the European, national, regional or city level context) rather than on the wider governance context in which it was operating (e.g. Broome et al 2013). Moreover, 79 of the 100 papers were quantitative rather than qualitative. The methodologies may well have been entirely appropriate for answering the types of research questions being asked. However, the dominance of quantitative methods privileges a focus on ex-ante estimates, the construction of predictive models, analysis of macro-trends, and the use of travel data in understanding policy, rather than on interviewing, documentary analysis, focus group work, and discourse analysis, that may also provide useful information for policy analysis. The majority of papers (65 of the 100) met all three of these characteristics; quantitative, not engaging policy makers, and not analysing real-world policy.

The tables 3 and 4 interrogate the characteristics of each paper in more detail;

Table 3 Characteristics of papers related to stages of the policy process

Addressed a stage in the policy process	**Engaged with policy makers**		**Real-world policy used**		**Methodology[6]**	
	Yes	No	Yes	No	Qualitative	Quantitative
Yes	4	9	11	2	9	5
No	6	81	14	73	12	77

Table 4 Characteristics of papers related to policy component

Policy component addressed	**Engaged with policy makers**		**Real-world policy used**		**Methodology[7]**	
	Yes	No	Yes	No	Qualitative	Quantitative
Ends/aims	0	4	2	2	2	2
Means/tools	10	50	24	36	16	47
None	0	37	0	37	3	34

Table 3 shows that papers that did address a stage in the policy process were more likely to be qualitative and to use a real-world policy in their analysis. By contrast those that did not address a stage were likely to also not engage policy makers (which

[6] Three papers used both qualitative and quantitative methods and therefore N = 103 for methodology.
[7] Three papers used both qualitative and quantitative methods and therefore N = 103 for methodology.

would be expected) but also not to address a real policy and to be quantitative in nature. Those papers that addressed a policy component were more likely to use real-world policy in their analysis and engage policy makers. Taken together, this suggests a very strong emphasis on both the study of questions related to policy but not about policy and, where policy is a focus, for this to be predominantly about what-ifs and, where real-world policies are used, for the processes that brought them into being to be largely absent from the analytical approaches adopted. We discuss these implications further below.

5. Analysis

Before reflecting on the results of the review it is important to be explicit about the nature of our analysis. Importantly, we are not making any judgement as to the strengths or weaknesses of the papers, nor the 'rights' or 'wrongs' of the approaches taken in each of the papers, but rather aiming to identify the gaps in the literature taken as a whole. In noting the lack of qualitative studies we are not suggesting that qualitative methods are better than quantitative ones for discussing policy. Rather, that the lack of qualitative methods means that the literature is not getting at some important policy-related questions and variables that such methods are more suited to help answer; for example, around the rationale for choosing a particular goal of policy, or deciding to change a levy at a particular moment in time.

In highlighting the lack of engagement with policymakers in the papers, we recognise that sometimes policymakers are inaccessible, or that other parts of a research project (of which one paper is only a part) may engage with policymakers, and that sometimes a discussion with policymakers may not be seen as relevant to the research question at hand. With this in mind, we are not arguing that all policy research should engage with policymakers, or indeed that the papers reviewed here should have spoken to policymakers, but rather that there is a concerning lack of engagement with them in the transportation 'policy' literature at large, which has implications for pursuit of holistic policy knowledge. In a similar vein, when we highlight the lack of 'real-world' policy examples we are not suggesting these papers are not advancing important knowledge – they are – but rather that there is a distinct lack of real-world examples alongside these studies, which is concerning for understanding policy in practice.

With these caveats made the analysis flags up several important gaps in the transportation 'policy' literature. There is a central focus on the mechanisms and calibrations of policy (the means and tools), and little attention paid to the goals, settings, and objectives (the ends and aims of policy). The 'policy' literature is therefore currently drawn to answering questions relating to what is, and making that work more effectively, than on critiquing the assumptions of the current status quo, and arguing for what ought to be, or what could be. For example, the literature is more concerned with creating or improving tools to help decide on which piece of infrastructure to invest in, than in engaging with a critique of the infrastructure

strategy on which the investment priorities are (and in turn the tools used) guided in the first place.

Related to the above point, the literature is drawn to static or context-free reflection on policy tools rather than process. The literature is therefore contributing knowledge for policy, rather than of policy. For example, there is more interest in what an optimal fee would be for effective operation of a toll booth than consideration of the political feasibility of setting the toll booth fee at that optimal level. This means that the majority of the literature is one-step removed from understanding the real-world complexities of policy-making, and this is compounded through lack of engagement with real world policy examples. Whilst we do not advocate a model whereby research is solely focussed on the realities of policy making[8], we do suggest that this is a critical consideration for a literature that purports to study transportation policy. This lack of engagement means that as a field we are artificially, but more importantly disproportionately generating a science of applied policy making which is unlikely to be applied because of the distance between it and the realities on the ground.

These findings highlight the persistence of the technical-rational paradigm within transport studies. This paradigm is bound up with the Weberian notion of the 'ideal type of bureaucracy' in which the politician and the administrator play clearly defined and non-overlapping roles. The political actor determines the policy priorities (hopefully informed by public and stakeholder opinion, and social values) that provide the context for the planning process, while the expert bureaucrat (or the planner) is left to formulate and execute policies as the means to the ends of fulfilling the policy priorities (Hill and Hupe 2009, 116). The technical-rational model, relatively unchanged in 50 years or more, therefore presents transportation planning as a step-by-step, means-end process typically consisting of the following steps;

1. Problem and issue identification;
2. Formulation of goals and objectives;
3. Data collection;
4. Generation of alternatives;
5. Analysis (including land use-activity systems models, urban transportation models and impact analysis models);
6. Evaluation (economic and non-economic);
7. Decision-making;
8. Implementation and
9. System monitoring

(Pas 1995, 60 cited in Willson 2001, 4)

We use the list from Pas here as a useful summary. However, other incarnations of the technical-rational model, such as that used in the recent European guidance on Sustainable Urban Mobility Plans, consist of eleven, more detailed, steps (EPSUMPs

[8] there are 69 transportation journals covering a range of technical disciplines and topic areas in the SCImago Journal and Country Rankings where policy is not a key focus

2014, 14). The separation of powers that exists 'between neutral, authoritative experts and the decision-makers whom they advise' in the technical-rational model (Owens, Rayner and Bina 2004, 1945) in turn leaves politicians and stakeholders exogenous to the process. Because of this exogeneity, it follows that 'scientific advice, grounded in a positivist epistemology, translates into the substance of policy' (Owens, Rayner and Bina 2004, 1945). And in turn, that more information will equal better decision making and better policies. Subsequently, the role of researcher/academic in relation to policy is as an information provider, not concerned with the 'doing' of policy itself. The focus of the disciplines that form the basis of transportation studies – an applied discipline – has therefore been on the advancement of techniques that can in turn make for a better planning process.

There is a long-held recognition that the technical-rational model is too simplistic, and that the practice of transport planning is far more complex and 'wicked' (Rittel and Webber 1973) in reality, with politics and politicians more heavily embedded into the formulation and execution of policy than the technical-rational model elucidates (Khisty and Arslan 2005, Timms 2008, Willson 2001). This has led to calls for notions of 'communicative rationality' and 'exogenous' variables such as decision maker preferences to be better built into models in order to make their predictions stronger. However, such responses do not get to the crux of the issue for us; the politicians and policy makers are still treated as exogenous to the decision making process, and the ends and goals of policy making are still not being engaged with, questioned and challenged. Impactful policy research in transportation needs to not only to be about providing better information and tools to aid policy makers, but also about developing a body of knowledge that critiques their practices and also understands why decisions come to be made in the way they are. In other words, we need to not only understand why the technical-rational model does not appear in practice, but avoid starting from the assumption of the technical-rational model in the first place. Thinking within the technical-rational paradigm provides important contributions, but fails to make some too.

6. Expanding the focus of transport policy research

While the technical-rational model undoubtedly produces valuable research both for the discipline and policy practitioners, we have noted above that research steered by this paradigm fails to acknowledge key aspects of policy. Several approaches that originate from the political studies field have illuminated important variables for understanding and analysing policy that the technical-rational model is, by its nature, blind to; issues of contestability, power, and legitimacy, to name but a few. In order to expand the contribution of the transportation discipline to policy research and practice, it is important to understand these variables, and by extension, to open up the range of questions which transportation policy researchers might seek to investigate. Below we outline three approaches that have gone beyond the technical-rational model, each of which could offer new insight; the multiple streams approach, advocacy coalition framework, and top-down/bottom-up approaches to policy

implementation. The key points from each approach are identified, drawing out the most important contributions to understanding policy, while recognising that there is the potential for overlaps between all three.

6.1 The multiple streams approach

The multiple streams approach was initially conceived as a way of understanding how some issues get on to the political agenda, while others do not (Kingdon 1986). The approach has survived over thirty years of analytical and empirical scrutiny and has been successfully applied to other areas of the policy making process (eg implementation) and numerous different political contexts (e.g the EU). The theory has also been successfully applied in numerous policy areas such as education, health, and forestry, and subsequently remains one of the key approaches to understanding the policy process (for a comprehensive review see Jones et al 2016). The approach outlines three process 'streams' – politics, policy, and problem – operating largely independently of one another, that when joined together by a 'window of opportunity' can lead to an issue gaining political salience (Kingdon 1995). The multiple streams approach highlights the existence of several characteristics of the policy environment not acknowledged by the technical-rational model, two of which we focus on here.

The first is that policy is often made under conditions of ambiguity; 'a state of having many ways of thinking about the same circumstances or phenomena' (Feldman, 1989, 5). Linked to this ambiguity is the ability of policymakers to frame problems in different ways. Frames are a combination of facts, values, theories and interests, that seek to construct a policy problem in a particular way (Schön and Rein 1995). When a policy problem is ambiguous it is surrounded by 'frame conflicts' in which rival accounts of the definition of the problem vie with each other to create a dominant discourse. There are three key elements to the context of ambiguity. The first is that participation in organisations is fluid; turnover of policy makers is high, and they 'drift from one decision to the next' (Zahariadis 2014, 27). Second, is the recognition that a clear policy objective is rare; due to time constraints politicians tend to make decisions without clearly articulating their preferences, indeed the lack of clarity may actually enable the decision-making process (Zahariadis 2014, 27). Third, it is often unclear to policymakers, what processes they have at their disposal in order to turn inputs into outputs; jurisdictional boundaries are unclear, and 'turf battles' between different departments or agencies are common (Zahariadis 2014, 27). Consequently, as Zahariadis (2014, 27) argues; 'Under such extreme conditions, theories based on rational behaviour are of limited utility. Because problems and preferences are not well known, selecting the alternative that yields the most net benefits is difficult.' Therefore deciphering what is relevant and irrelevant information is problematic for the policymaker. And, in turn, policy making 'becomes less an exercise in solving problems and more an attempt to make sense of a partially comprehensible world' (Zahariadis 2014, 27). Consequently, where the technical-rational model emphasises order, clarity, and stability, the multiple-streams approach highlights the often confused, opaque, and turbulent nature of policy making.

The second characteristic of the multiple streams approach to note here contends with the technical-rational model's assumption that solutions are created in response to a particular policy problem and that the best technical solution will be the one that is taken up in policy. The multiple streams approach instead highlights how policy solutions tend to pre-exist the policy design process and that solutions have several non-technical reasons for not being implemented. The approach identifies the policy sphere or 'stream' as a 'primeval soup' in which ideas 'float around' in communities of specialists. For example, it is well understood that major infrastructure schemes can be several decades in their development before funding is committed. The logics which underpin them, the environment into which they are to be delivered and the benefits they might be claimed to generate all go on a journey over time which our current approaches do not attend to (see Frick 2016, for a notable exception on the rebuilding of the San Francisco-Oakland Bay Bridge). Kingdon's multiple streams approach also gives weight to the actions of policy entrepreneurs; a person willing to invest their resources in pushing their pet proposal or problem forward. These entrepreneurs 'soften up' the policy community and in turn connect a policy solution to a particular problem, and it is when the politics fits with the proposal, that the solution is taken up and used.

Kingdon (1995) identifies several criteria a policy solution needs to meet in order for it to be considered for use. The first is its technical feasibility; 'advocates of a proposal must delve into details and into technicalities, gradually eliminating inconsistencies, attending to the feasibility of implementation, and specifying the actual mechanisms by which an idea would be brought into practical use' (Kingdon 1995, 131). This criterion is in line with the technical-rational approach, but is not the only important factor. Even if a proposal is technically feasible, it must have 'value acceptability'; it must be compatible with the values of the specialists involved in the process (Kingdon 1995, 123). For example, nationalisation of a particular service may be technically feasible, but may not be palatable to policymakers who believe in a minimal role for the state. Third, they need to be compatible with anticipated future constraints; for example civil servants need to be convinced that the costs of the program will not exceed a financially acceptable level, and believe the proposal has a reasonable chance of being approved of by politicians and the public (Kingdon 1995, 138). It is therefore important to recognise the context within which methodological tools and policy appraisals are being applied.

6.2 The advocacy coalition framework

There are two key aspects of the advocacy coalition approach important to note here. The first is the recognition of power struggles in the policy process, where 'any given policy can be seen as representing the balance between different advocacy coalitions' (Ritter and Bammer 2010, 354). Advocacy coalitions are groups of actors – embedded within the policy environment of informal networks – who share 'policy core beliefs' and in turn coordinate their actions to influence a policy domain. It is assumed that each coalition will actively promote their beliefs and try to get them translated into

policy before other coalitions do the same. In order to be successful, coalitions 'must seek allies, share resources, and develop complementary strategies' (Sabatier and Weible 2007, 196). Understanding the policy relevant resources that coalitions need in order to influence policy is therefore essential to understanding policy outcomes. Successful coalitions are likely to have members of their coalition in positions of formal authority; a key resource. Support from the public is also important as it adds legitimacy to their policy position and increases the chances of coalition supporters being elevated to positions of power. Some of these issues are acknowledged in work on regulatory capture (see Preston, 2001 on rail reforms) but how regulators are captured and how this operates in practice is less well understood.

Information on the cost/benefit and severity and causes of an issue is also important, as it helps to solidify coalition membership, argue against the opposing coalition, convince decision makers of policy proposals, and sway public opinion (Sabatier and Weible 2007, 203). Thus policy decisions are not simply based on the recognition or balance of 'objective' evidence as argued in the technical-rational model; but rather, partially determined by the ability of coalitions and individuals within them to use such evidence to their advantage in order to influence the policy process. Financial resources are also important to enable the purchase of other resources, such as the commissioning of research, or funding of public media campaigns to garner support.

The second point to take away from the approach is the importance of beliefs to the policy process; it is around beliefs that coalitions are formed. The beliefs of actors not only influence how evidence is used, as alluded to above, but also what policy options are seen as legitimate. A key premise of the framework is that individuals are boundedly rational; unclear how to achieve their goals, and limited in their ability to process information and experience (Simon, 1982). Given these limitations, individuals 'simplify the world through their belief systems and are therefore prone to biased assimilation of stimuli' (Jenkins-Smith et al 2014, 191). The framework stresses 'the tendency for actors to relate to the world through a set of perceptual filters composed of pre-existing beliefs that are difficult to alter' (Sabatier and Weible 2007, 194). Moreover, the perceptual filters of policymakers tend to screen out information that may challenge their belief system, while utilising evidence that reaffirms their worldview. Reframing of policy ends and aims, which features in less than 10% of the papers sampled, is an important part of unlocking policy deadlocks. Thus, while the policymaker in the technical-rational model is a neutral consumer of information; ready to respond in the way the evidence suggests, the advocacy coalition framework highlights how the beliefs of actors actually shape whether evidence is sought and how it is perceived and acted upon (see Sodero, 2015 for a relevant example on carbon tax implementation).

6.3 Top-down and bottom-up approaches to implementation

Finally, we draw lessons from an extended debate within the policy implementation literature that are important for drawing out some key components of the policy process neglected by the technical-rational approach.

A ‘top-down’ analysis of implementation takes a policy decision, usually a piece of legislation, as its analytical starting point and looks to see how this is translated from where it was created (typically central government) down through to where it is delivered (typically local government or an agency) (Hogwood and Gunn 1984, Gunn 1978, Pressman and Wildavsky 1984, van Meter and van Horn 1975). In line with the technical-rationalist approach, implementation is conceptualised as resulting from a policy decision, with policy outcomes occurring as a result of policy design; ‘implementation...means…to carry out, accomplish, fulfil, produce, complete…’ (Pressman and Wildavsky 1984, xxi). On this basis four questions guide analysis of a policy’s implementation (taken from Sabatier 1986, 22-23);

- To what extent were the actions of implementing officials and target groups consistent with (the objectives and procedures outlined in) that policy decision?
- To what extent were the objectives attained over time, i.e. to what extent were the impacts consistent with the objectives?
- What were the principal factors affecting policy outputs and impacts, both those relevant to the official policy as well as other politically significant ones?
- How was the policy reformulated over time on the basis of experience?

The ‘top-down’ literature in turn emphasises the importance of policymakers having overall control of the implementation process, and the importance of clarity in policy design; including the provision of clear and consistent objectives; ensuring there is satisfactory causal theory built into the policy (the adequacy of the policy’s jurisdiction and levers to effect change); and ensuring the legal structure of the policy and its context enhances the compliance of implementation officials and the policy’s target groups (Sabatier 1986, 23). This approach mirrors much of way in which policy evaluation studies are established.

However, research using a ‘bottom-up’ approach highlights the potential naivety of top-down prescriptions, which in the opinion of ‘bottom-up’ analysts, sought to treat implementation as merely an administrative process (Matland 1995, 148). Rather than start with a focus on an initial legislative decision, bottom-up analysts take the activities of those responsible for putting the initial policy decision into practise as its starting point. The focus is on seeking to understand the goals, strategies and relationships of those people involved in implementation (Hjern et al 1978). Therefore, where top-down, technical rational analysis focuses on legislative and structural factors, a bottom-up approach focuses on context-specific factors. A bottom-up analysis is guided by questions such as;

- What are the goals, strategies, activities and contacts of those involved at ‘the ground level’ (e.g. in service delivery)?

- How much stakeholder involvement is there in the development and execution of the policy?
- How much discretion, collaboration and cooperation is there between actors at the ground level?

Bottom-up approaches recognise the dispersed nature of control within processes of implementation and the influence that factors beyond the control of policymakers can have on implementation (Elmore 1979). For example, Lipsky's (1980, xi) analysis of the street-level bureaucrat, suggests that the routines and devices that service delivery actors deploy to cope with the pressure and uncertainties they face in their work actually 'become the public policies they carry out'. Lipsky (1980) suggests that the 'inescapable' discretion these actors have, coupled with their knowledge of the system, mean they have power that is near impossible to control through central regulation and legislation. Matland (1995, 148) summarises the conclusions of bottom-up analysts nicely when arguing that; 'Central planners only indirectly can influence micro-level factors…Contextual factors within the implementing environment can completely dominate rules created at the top of the implementing pyramid, and policy designers will be unable to control the process.'

The implementation literature has come to somewhat of a consensus that both top-down and bottom-up approaches are useful, provide important aspects of analysis (Hill and Hupe 2009, Matland 1995, Sabatier 1986), and that to some extent the two approaches symbolise the two sides of the same implementation coin (Lane 1987). However, for our purposes it is important to recognise the tendency for policymakers, the media, and others, to frame policy implementation, and indeed the policy-process more widely, in 'uncompromising top-down terms' (Hill and Hupe 2009, 58). By focusing just on top-down variables, the importance of factors outside of policy design, and even the policy domain, become lost as important factors for consideration and evaluation in the transportation field, and therefore only a partial understanding of the reasons for certain policy outcomes result (see Reardon 2016 and Marsden et al., 2014 for the very fuzzy cascade of quality of life and carbon reduction targets from national to local scales).

7. Conclusion

This paper has examined the state of the art approaches to studying transportation policy. It first described two different frameworks of policy which can be used to classify the field and then applies those to 100 papers sampled from the two leading policy facing journals in the transportation literature. The review found that only 13% of papers consider specific aspects of the policy cycle, fewer than 10% of papers engaged with debates about policy aims and that two-thirds of papers did not engage with real policies or policy makers and focussed on quantitative analysis alone; indicative of a dominant techno-rational approach to studying transportation policy. Our concern here is not with a critique of the research methods applied in the existing studies and nor is it to deny the importance of scientific advancement which is unimpeded by the messy realities of decision-making. However, the distance between

applied transportation policy studies and policy making is quite startling. This distance means we are blind to a range of critical research topics that shape decision-making. As a result the field is not advancing our understanding of options and opportunities to intervene and improve these processes and almost certainly means that significant intellectual effort is being invested in decision-support tools that are poorly targeted to those they claim to support. We suggest that a step-change is required in the study of the why, what and how of transportation policy if we are to understand why we have the policies we have today and the potential for future policy pathways to be achieved.

The three policy approaches discussed in section five point to a raft of different and wider research questions than those begged by current 'policy' research within the transportation field, all of which are important for advancing a more holistic understanding of transportation policy and related policy processes. The first question concerns the need to get 'behind the mask' of policy. In considering not only how, but also why, policies are chosen it is just as important to understand the reasons why a policy was not considered appropriate, as it is to understand why another one was. Related to this we need to understand how and why particular policies are framed as they are. It is not enough to take the policy statement as the answer to this question. In unpicking the policy framing we can begin to understand the way in which policymakers define and comprehend problems, and in turn the policy that results (Rochefort and Cobb 1993). Questions can also be posed about how stable these logics are over time (given the timescales often required for delivery) and how they survive or morph when other competing priorities move into view. It is only when we know this information that we can begin to critique the basis on which decisions are made, and look to elucidate alternative, potentially more effective, policy approaches. While the provision of information is one factor in this framing, the approaches outlined in section five show clearly that it is not the only one.

Of further importance in this regard is the role that notions of legitimacy and concerns over 'political risk' play in the creation of policy. What is classed as the most appropriate policy option in the eyes of a cost-benefit analysis may not be deemed the most appropriate in the eyes of a politician before an election (see Eliasson and Lundburg, 2012). The transportation discipline has arguably focused too much of its attention on the creation of indicator sets, and modelling tools to aid decision-making, at the expense of understanding how, when, if, and to what end these tools are actually used (Gudmundsson and Sørenson, 2013). To this end, we need to ground more research in the empirical reality of real-world policy activity (e.g. Börjesson and Kristofferson, 2015).

We also need to more fully recognise and understand the power dynamics that are at play within a policy area. It is important to know the 'who, what and why' of influence in a policy sphere in order to understand the potential barriers and opportunities for policy change, and stability of policy over time. We need to not only be able to map the decision making systems and formal structures of power but also

recognise the more informal networks and sub-systems of actors that coalesce around policy issues. So, whilst it has been acknowledged that institutions matter in transportation policy we need to know more about how and why for different policies and in different contexts. More explicitly we need to more fully appreciate the governance dynamics at play in the policy process; not only the formal, but also the informal dynamics of influence, and the blurring of authority and steering capacity between the public and private, business and government, and the reasons for which certain actors hold sway over a system (be this monetary resource, expertise, information or legal authority).

Linked to this, in analysing policy, we need to more fully recognise the context in which it has been created, is being implemented or being evaluated. Not only is this a valuable end in in itself, but it will ensure that the tools that the field creates to aid in these elements of the policy process are deemed effective and appropriate by those they are designed to assist. Policy is not made in a hermetically sealed environment; it is dependent on the politics, people, and socio-economic factors of the day (Siren and Sørenson, 2015), as well as the policy environment that exists around it and policies that have existed previously. The multiple streams approach highlighted how, policies and policy ideas have histories, while the advocacy coalition approach alluded to how policy beliefs can become institutionalised over time. Policy, policy actors, and the context in which problems arise and politics occurs, all interact together, and changes over time mean that if policy is only captured in a snap-shot of time, important dynamics may be missed.

In summary, if we are to understand and advance the state of the art of transportation policy study then there is a need to engage with substantive questions of governance which pay greater attention to context, politics, power, resources and legitimacy. This paper sets out that challenge and identifies some tools that might further these understandings.

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