

Learning Critical Realist Research by Example: Political Decision-Making in Transport

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Abstract

This article illustrates the process of applied Critical Realist research using a case study of political decision-making in a transport context. CR is often used to analyse broad socio-political change but rarely to explain specific political decisions, and never in transport studies. There have been a few recent attempts to illustrate the process of applied CR but not in a political context. The case study analysed an apparent inconsistency in the attitude of UK governments towards road building in the 1990s and post-2012. It structured the findings in a diagrammatic form, illustrating the relationships between social structures, causal mechanisms and actors. This article questions the conventional distinction between ‘more important’ and ‘less important’ causes. It shows how normative conclusions may be derived from empirical findings where no agreement exists on the objective basis for normative judgements. It demonstrates how CR methods can provide deeper explanations for policy change than the existing approaches used in transport studies.

Keywords: Applied Critical Realism; Critical Realist methodology; Critical Realism and politics; Critical Realism and transport; road building; UK politics

1 Introduction and Context

1.1 *Aims of the Study*

Shortly before his death Bhaskar reflected that:

“applied or practical critical realism...should be the heartbeat of CR.

Despite this, there is a dearth of such texts. For even when one has begun to grasp some principles of basic critical realism it will not be obvious how exactly ‘one is to do it’.” (Bhaskar, 2014 p. v).

Since then a few writers (including Edwards *et al.*, 2014, from which the above citation is drawn) have tried to address that challenge. In a few examples, the writers have used specific case studies to illustrate the process they followed. Some of these have been drawn from business and organisational studies (McAvoy and Butler, 2018, Hu, 2018, Armstrong, 2019) and from sociology (Fletcher, 2017) but not in the context of political decision-making. This article will provide an illustrated example of how CR research can be done in practice, using a political case study.

CR methods have been widely used to explain broad socio-political change (e.g. Marsh *et al.*, 1999, Montiel, 2007, Jonsson, 2012) but rarely to explain specific political decisions, or a specific governmental decision-making process. CR provides some unique insights into the relationship between human agency, social structures and culture (particularly associated with Archer, 1995), which any explanation of political decision-making must address. It also recognises that the non-occurrence of an event may be as revealing as its occurrence (Easton, 2010). It will demonstrate how those insights can provide a deeper explanation of political decision-making, using a comparative study of contrasting decisions by similar governments in two time periods.

The decisions concern national policy on road building in the UK, which radically changed during the late 1990s and again after 2012. Melia (2019) describes the context of the project, the data collection and findings in more detail. The aims of this article are to describe and illustrate the process followed and to draw conclusions for the study of political decision-making in general and transport policy change in particular.

The idea of a standard methodology, which can be replicated or re-applied to similar subject-matter is inimical to CR; each application is “a creative application of discovery” although we can still “learn by example.” (Bhaskar, 2014 p. ix, xv). CR is a philosophy of science, not a methodology, so published reflections on the application of CR have mainly focussed on meta-theoretical reflection, which tends to complicate rather than simplify the explanations of ‘how to do it’. The CR literature does not make it easy to learn by example.

As the main aim of this article is to demonstrate through example it will inevitably simplify some CR concepts in places. It will demonstrate how diagrammatic representations of the findings can help researchers through the process and help readers, who may be unfamiliar with CR, to visualise and better understand the causal mechanisms revealed by the research.

Section 2 will begin by discussing some of the challenges for applied CR research in the context of recurring criticisms of CR studies. It will then review how some applied CR researchers have described their methods to facilitate learning by example. Section 3 will briefly review the dominant approaches to analysing political change in transport studies and the few applications of CR methods in that field to date. Section 4 will briefly describe the context for this project. Section 5 will describe and illustrate the process followed and provide some examples of how this led to the findings, which are also illustrated diagrammatically. The final section will discuss the implications of the process and the findings for the study of political decision-making and transport policy change.

2 Applying Critical Realist Methods

2.1 Challenges for Applied Critical Realism

In political science, CR has been proposed as a resolution to the perennial debate over the primacy of structure or agency (Marsh *et al.*, 1999). Social structures exist at a deep layer (the ‘real’ layer); they exist independently of human actions but are influenced by them. Actors in any situation have agency but they are constrained by social structures. The CR concept of ‘social structures’ has been contested and there is

no single agreed definition (see for example: Archer, 1995, Porpora, 1998, Kaidesoja, 2009). This study will broadly follow Archer (1995) in regarding social structures as composed of social relations *and material resources* (this is particularly important in transport) predating the actions which transform them. An economic system such as capitalism is one clear example of a social structure. Melia (2019) also refers to a transport social structure, as discussed in Section 6.2.

Social structures and actors are linked by causal mechanisms with emergent properties, which may be activated under certain circumstances but not necessarily (Sayer, 2000). The social structures, the causal mechanisms and their emergent properties are not directly (or not fully) observable, although some may have physical manifestations (for example Næss, 2016 gives the example of the built environment) and individual agents who experience their impacts may have their own (partial) insights into causes and effects (Fletcher, 2017).

This acknowledgement of a real world which humans cannot directly observe, with causal properties, which may or may not occur, provides a powerful critique of positivist and interpretivist approaches to political change, but it also poses a big problem for applied CR research. If we cannot observe or measure the underlying forces, how can we demonstrate what causes what, or as Sanders puts it: “How would you know if you were wrong?” (Sanders, 2002, cited in Marsh and Savigny, 2004). These unresolved problems lie at the heart of many criticisms of CR.

For the reasons explained by Bhaskar above, no two accounts of the CR process are identical, and some of the terminology also varies, but following Lawson (1997) it

typically begins with the identification of demi-regularities (or demi-regs), recurrences or anomalies that suggest an underlying mechanism has been activated. As Lawson observes, the world is full of demi-regs (men earn more than women, for example) though not ‘event regularities’, laws of human behaviour that work independently of context (so rational economic man is an ideological myth). In deciding what to research, he recommends unanticipated or surprising phenomena which alert the researcher to previously unidentified causal mechanisms. That advice provided the starting point for this project.

Bhaskar (2010) describes the analytical process for CR research through the acronym RRREIC, standing for: Resolution, Redescription, Retroduction, Elimination, Identification and Correction. Resolution means the breaking down of complex phenomena into their components. Redescription refers to the theoretical redescription of those components in preparation for Retroduction – the identification of underlying structures and causal mechanisms.

RRREIC is a high-level conceptualisation of a process; it is not a step-by-step guide so, for example it does not specify where data collection might fit into that process. CR does not imply or preclude any form of data collection, although CR ontology does imply that quantitative data collected in the past can tell us little about future relationships (Næss, 2004).

The final phases of the process are arguably the most important and the least explained in the literature. Lawson says:

“not much can be said about this process of retroduction independent of context other than it is likely to operate under a logic of analogy or metaphor and to draw heavily on the investigator’s perspective, beliefs and experience.

(Lawson, 1997 p. 212).”

Other CR writers have emphasised the importance of “scholarly knowledge” (Sayer, 2000) or “judgemental rationality” (Hu, 2018, Bhaskar, 1998a) in that process. Isaksen (2016) argues that the ontological focus of most CR writings has caused CR researchers and text books to overlook the assistance which Bhaskar’s writings offer to the next stage of the process: choosing between alternative theories or explanations. Drawing on Bhaskar (2009) he argues that CR researchers should choose those theories or explanations which explain more phenomena (in number and significance) at the deepest level of reality. Whilst this recommendation deepens the process it does not make it any less subjective or any easier for applied researchers to follow. How, for example, should a researcher decide which phenomena are most significant, or balance greater significance against larger numbers or greater depth?

The unavoidable subjectivity of these processes has fuelled several criticisms of CR methods. For Hodgson (1999, 2004) it has enabled some CR writers to indulge their political biases. His (2004) critique of Lawson’s (1997) case study about the UK’s industrial decline is valid; it is not clear why Lawson chose one causal explanation over many others. However, his assertion that research must be able to demonstrate “which are the most important” explanations (Hodgson, 2004 p. 62) is more contestable, as discussed in Section 6.3.

An analogous debate has concerned the link between CR and moral realism. For Bhaskar morality has “an objective real property”, which justifies the use of CR research for “emancipatory” purposes (Bhaskar, 1998a p. 569), including ecological purposes (Richards, 2019, Bhaskar, 1989) as in this study. Bhaskar’s concept of scientific rationality implies that values are informed by facts (Bhaskar, 1998b). Hammersley (2009) argues that Bhaskar’s approach is logically inconsistent, because any morality is ultimately based on subjective values (however those values are informed or refined by facts), and practically inapplicable because the judgements of social researchers are, like their subjects, fallible. These are issues of contention between CR writers (summarised by Price, 2019); all reject moral relativism but some disagree with Bhaskar, arguing that morality is a social creation (e.g. Elder-Vass, 2019). This article will not attempt to resolve those philosophical questions, but it will illustrate an alternative method for drawing normative conclusions from a factual analysis, a method consistent with the CR principles of reflexivity and transparency of process.

2.2 Learning from Reflexive Studies

A few writers have recently published some reflexive CR studies with a more or less explicit aim to aid learning by example, most notably Fletcher (2017). She observes that most CR literature can be classified as high-level philosophy of science and theory or reports of empirical research, which do not really demonstrate how CR contributed their findings. There are also a few articles or chapters from textbooks which describe the process in principle (e.g. Wynn and Williams, 2012) but Fletcher’s observation remains broadly accurate. She then sets out to illustrate the steps of data collection, identification of demi-regs, redescription and retrodution using a case study

of women farm workers in Canada. The process started from a high-level theory and the explanations given by interviewees. From these two sources Fletcher identifies two 'structural mechanisms' causing change in the lives of the subjects: gender ideology and corporatisation. Although this is a very useful article, which influenced this project, the criteria used for choosing between competing explanations are not entirely clear. One hypothesised alternative, government policies, appears to be rejected because the subjects did not mention anything related to them; that is one possible criterion if the researcher believes that the subjects would have had some awareness of policies' impacts. The focus of Fletcher (2017) was on one group of actors; it did not seek to identify the causal interactions between social structures and different groups of actors, including political decision-makers, as this study will.

The reflexive practice of CR has been most developed within business and organisational studies. One important example (Easton, 2010) predated Fletcher's review. Easton takes issue with the use of the term [causal] 'mechanism' because it implies a degree of invariance, which would be inconsistent with CR, although he continues to use the term with that caveat. He notes that CR mechanisms do not need to be linear, or "statistical or logico-rational as in box and arrow diagrams" (Easton, 2010 p.122). This study will use box and arrow diagrams for clarity of representation and to aid the process of retrodution, recognising that this is a simplification of a dynamic and context-specific set of relationships.

More recently, Hu (2018) and McAvoy and Butler (2018) conduct reflexive CR studies of entrepreneurship and behaviour within organisations respectively. Both of these articles compare multiple case studies as part of the retrodution process.

Although Hu provides a clear description of the process, it is mostly at a high level (possibly due to word constraints); it would not be possible for another researcher to replicate the method based on the description. McAvoy and Butler (2018) use a previously-published case study, as this article does, only in their case the original article (McAvoy and Butler, 2009) was published some years before and made no mention of CR; they may have been following Bhaskar's 2014 comments about CR as an implicit method of all good science. They illustrate in tabular form how alternative causal mechanisms may be assessed against competing theories and empirical observations from multiple case studies.

It is notable that few descriptions of applied CR research explicitly follow Bhaskar's RRREIC process. One exception is Armstrong (2019), which was a study of performance measurement and management in the software industry. Table 2 of Armstrong (2019) shows a loose relationship between RRREIC and the stages of the research project; like many such accounts it has little to say about the process of retrodution or the criteria for choosing between different explanations.

All of the above articles add in different ways to the potential for learning by example but not in a context of political decision-making. Most of them use diagrams of some kind but none has attempted to illustrate the relationships between the relevant social structures, causal mechanisms, groups of actors and outcomes, as this study will do.

3 Political Change and Critical Realism in Transport Studies

The outcomes of transport policy affect the lives of almost everyone, but the study of transport policy is a very small subset of transport studies, a hybrid discipline which is heavily influenced by the ‘positivist’ ontologies prevalent in economics, engineering, psychology and applied mathematics. The word ‘positivist’ is put in quotation marks, recognising Hammersley’s (1995) observations on the use and abuses of that term. The term is used here to describe:

- a preference for quantitative analysis,
- a belief in context-independent laws or rules of human behaviour
- a belief that quantitative analysis of past data can predict the future
- a lack of interest in (if not denial of) layers of reality which are not observable or measurable

CR has made little progress in transport studies. A few qualitative studies have claimed to be guided by CR; Wall (e.g. 1999) was one example relevant to this study, but it is unclear how CR influenced what was largely a descriptive account (albeit a rich and useful one). The only writer who has repeatedly applied CR to transport questions is Næss (2004, 2006, 2015). Næss (2004) and Næss and Strand (2012) address the ontology and practice of quantitative forecasting, which is central to governmental decision-making as well as academic transport studies. He notes the persistence of certain demi-regs of travel behaviour e.g. the observation that building more road capacity increases traffic volumes. This implies that there may be more potential for valid forecasting than “critical realist orthodoxy suggests” (Næss, 2004 p.158), though not to the extent that is practised today. How valid such forecasts might be will depend

on the stability of the relationships between social structures and travel behaviour, which are likely to be more stable in the short-term than in the longer-term. This issue of uncertainty is also relevant to the question about “more important” and “less important” causes, which Section 6.3 will return to.

This positivist culture has also influenced the study of transport policy. A recent review of articles in the leading policy-oriented transport journals found that only 13% of them analysed or reported on the policy process (Marsden and Reardon, 2017). The authors noted the persistence of a technical-rationalist model of policy-making, which bears little relation to the realities of political decision-making. The widespread use of cost-benefit analysis in transport decision-making (neither critical nor realistic according to Næss, 2006) reflects a positivist ontology shared between decision-makers and many academics, although as this project found, such analyses may be readjusted or ignored where they conflict with political imperatives (Melia, 2019).

As an alternative to the technical-rationalist approach Marsden and Reardon (2017) suggest three other approaches from political science and the subfield of policy implementation: the multiple streams approach (following Kingdon, 1995), advocacy coalitions (following Sabatier, 1988) and top-down/bottom-up approaches to implementation (following Pressman and Wildavsky, 1973). All of those approaches have influenced the small body of literature focussed on transport policy change, including some of the key sources for this study (Dudley and Richardson, 1998, Dudley, 2007, Dudley and Richardson, 2000). However, none of those approaches in themselves can answer why, at a deeper societal level, a particular change occurred, or did not occur, at a particular time. In CR terms, they are only concerned with the

empirical and actual levels. The authors using these or other theoretical frameworks may sometimes acknowledge causal mechanisms emanating from changes in social structures (whether they use those terms or not) but there is no systematic body of work which does that in transport studies. Melia (2019) was published in *Transport Policy*, one of the journals analysed by Marsden and Reardon (2017); the reviewers commented that it was an unusual article.

4 The Starting Point – A Surprising Observation

As discussed above, describing a process for identifying relevant causal mechanisms and choosing between competing explanations has posed problems for researchers and even the writers of text books on CR methods. As Isaksen (2016) argues comparison must be central to that process. Where the phenomena under study are repeated many times, showing evidence of demi-regs, such comparisons may be relatively easy to make. As Næss (2004, 2019) points out, there are many such examples in transport studies, such as widespread observations that people who live in dense urban areas drive less than people in suburbs. When researching such issues quantitative analysis may be as appropriate for a CR study as it is for a positivist study. But political decision-making is unlikely to generate large datasets with sufficiently comparable contexts; it requires intensive rather than extensive research designs (following Sayer, 2000). The main sources of data on political decisions will come from the actors involved, who may be able to offer their own explanations but as Bhaskar (2009) points out, neither agreement amongst themselves, nor agreement between them and the researcher would provide sufficient grounds for choosing between explanations. How then to make an appropriate comparison and make an

informed choice?

One possibility described by Lawson (1997) is to look for surprising, counterintuitive observations or comparisons. The starting point for this study was one such comparison. In the late 1990s a Conservative UK government leading the country out of a recession with severe pressure on the public finances decided to drastically scale back its road building programme. Between 2012 and 2015 a Conservative-led government leading the country out of a recession with severe pressure on the public finances decided to treble the size of the national road building programme. The research question was: why did those two governments react so differently on those occasions?

The literature has more to say about the earlier period. Drawing on some of the theories outlined above, some studies at the time or shortly afterwards argued that a paradigm shift occurred during the late 1990s (Dudley and Richardson, 1998, Dudley and Richardson, 2000, Goodwin, 1999). As evidence mounted that road building was unable to prevent rising congestion an intellectual and political consensus emerged that transport policy should no longer rely on large-scale road building. Some (e.g. Wall, 1999) emphasised the role of direct action; over five years thousands of protestors camped on road building sites, obstructing the work and provoking thousands of arrests. Others downplayed the influence of environmental protests (Robinson, 2000, Vigar, 2001), whilst some argued that environmental arguments for cuts in road building are “always more attractive to governments in periods of fiscal crisis” (Glaister et al. 1998 cited in: Vigar, 2002 p.161). That observation is logical, but why were such arguments less influential after 2012?

The few articles published about the later period included a rich empirical study which emphasised the strong influence of one actor – the Chancellor George Osborne (Docherty *et al.*, 2018) and a more reflective article, emphasising the role of the road building lobby (Davis and Tapp, 2017). That lobby has certainly been influential in the past, but why did its influence wane in the late 1990s? Clearly deeper forces were at work; this was an ideal opportunity for a CR analysis.

5 The Process and Findings

5.1 *Outline of the Process*

Like some of the studies reviewed above, but unlike McAvoy and Butler (2009), the project was structured as a CR study from the outset, using an intensive research design. As the research question concerned political decision-making the main data sources were the accounts of the actors involved. These were collected directly, through interviews, as well as many published and unpublished documents.

Figure 1 illustrates the process followed in this case, with some simplification. The two-way arrows indicate iterative steps. The dotted line between stages 2 and 3 reflects the influence of the theories and explanations from the literature on the interviews. The ‘additional data’ which informed stages 5 to 7 included some published literature, government economic statistics showing changes in the economic social structure, statistics such as total traffic volumes, measures of public opinion from the British Social Attitudes Survey, and two separate analyses of media coverage, which were used to analyse the Public Opinion mechanism described below.

The stages broadly followed the RRREIC schema as indicated by the first column, though not always in that order. Retroduction, identification and elimination were iterative processes as described in Section **Error! Reference source not found.** Stages 10 and 11 illustrate an additional step, Recommendation, reflecting the alternative method for drawing normative conclusions from a factual analysis described in Section 5.3.

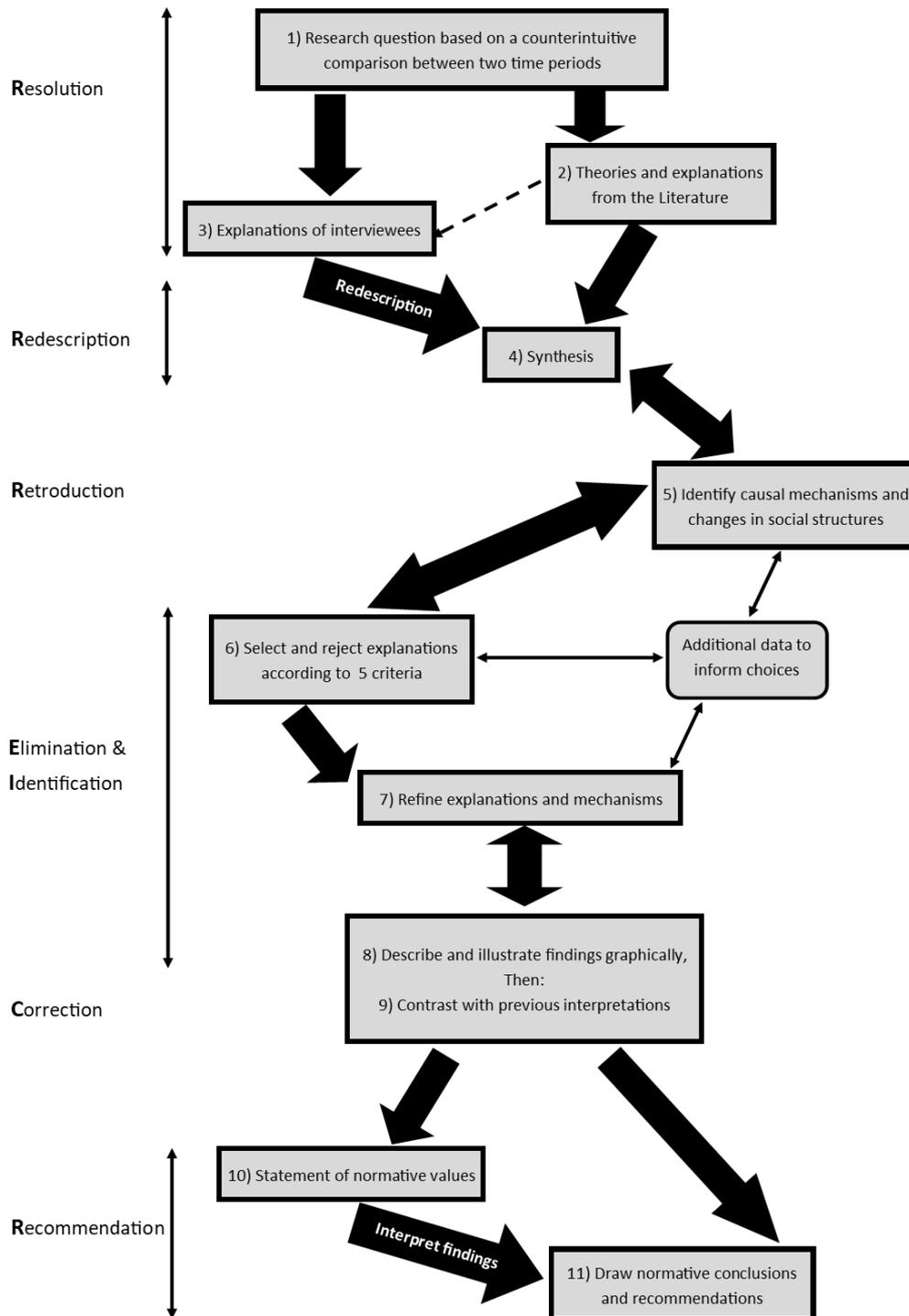


Figure 1 – RRREIC (+ R) model and the process followed in this study

The 32 interviewees included former ministers, advisors, senior civil servants, representatives of NGOs, leaders of campaign movements and civic leaders with experience relevant to one or both of the two periods, plus some of the intervening years in most cases (Melia, 2019, Table 3). Most of the interviewees were explicitly asked to comment on the research question. This was a well-informed and self-aware sample, many of whom had already reflected on the causes and effects of policy changes, although none seemed to have juxtaposed the two time periods in that specific way before.

5.2 Identifying, Selecting and Eliminating Explanations

The design of the study around a comparison – between two periods – helped to structure the criteria for choosing between explanations, although following Lawson’s comments in Section 2.1 the application of those criteria still relied on the judgement of the researcher. The potential explanations were collected from the interviewees, informed or supplemented in some cases by the previous literature. This list was then assessed as follows:

1. Is the explanation consistent with evidence of a causal mechanism that occurred in practice?
2. Is there counter-evidence casting doubt on the explanation?
3. Does the explanation relate to a change in an underlying social structure, for which there is evidence?
4. Is the explanation consistent with the opposing outcomes in the two periods i.e. less road building in the 1990s and more road building after 2012?

5. Are any of the explanations contradictory, necessitating a choice between them, or did they occur simultaneously?

Criteria 1 to 4 (and steps 5 to 8 in Figure 1) may be illustrated through two of the three causal mechanisms identified in Melia (2019) – the *Rational Response mechanism* and *Public Opinion mechanism*.

One of the interviewees, Prof. Phil Goodwin, was both an academic commentator and, as a government advisor, a direct participant in the policy changes which occurred during the 1990s (Goodwin, 1999). Several other interviewees referred to the doctrine of “new realism” originally proposed by Goodwin *et al.* (1991). That report, *Transport the New Realism*, was a technical-rationalist explanation of why increasing road capacity was self-defeating (it generated more traffic), a study of changing attitudes within the transport planning profession (away from road building) and a normative appeal for governments to scale back road building plans and introduce traffic-restraining measures instead. The New Realists argued that no feasible road building programme could keep pace with the rate of traffic growth forecast by governments, so the best outcome that a road building programme could achieve would be to make congestion “get worse more slowly”.

The New Realists’ normative appeal was mainly motivated by environmental concerns and some of the literature influenced by the New Realism in the early 2000s suggested that environmental concerns had prompted governments to cut the road building programme. These two explanations – the unfeasibility and the environmental concerns – were probed during the interviews. Government ministers and civil servants

confirmed the unfeasibility explanation and gave specific examples of how and when it changed decisions on specific road building projects and/or the road building programme as a whole. One minister summed it up as follows:

“Everyone began to learn that you couldn’t build [roads] to solve the problem that there were too many cars for roads.”

The same interviewees were also asked whether environmental concerns had influenced those decisions. Their responses suggested no direct influence, although there was an indirect influence via public opinion. The British Social Attitudes Survey corroborated the view expressed by some interviewees and some of the literature that the public became more concerned about the environmental damage caused by road building during the mid-1990s. The timing of the changes in public opinion (and media coverage) suggested a strong influence from the protest movement.

So, following criteria 1 and 2 a rational response mechanism based on the unfeasibility argument, and a public opinion mechanism influenced by the protest movement, were both provisionally accepted as explanations for the change during the 1990s. A rational response mechanism based on environmental concerns was rejected.

Turning to criteria 3 the New Realist literature had already identified several factors which were changing the climate of opinion within the transport planning profession. These included rising car ownership, rapidly rising traffic volumes and congestion, and evidence that road building was failing to reduce congestion because it was generating more traffic. These changes were partly due to economic changes, such as increases in GDP and the falling cost of cars relative to wages. The concept of an

economic social structure is well established in CR literature and was clearly relevant to this study. However, other forces were also at work. The transformation of Britain (and many other countries) into a car-dependent society was assisted by policies and decisions by successive governments since the 1950s, such as earlier decisions to expand the road building programme, close railway lines and reduce subsidies to public transport. To reflect these in the model, a new concept of a **transport social structure** was needed. The transport social structure is the set of material conditions and associated social relations, which exists at the real level, discussed further in Section 6.2.

Figure 2 illustrates the Rational Response mechanism in a simplified form. A single arrow represents impacts *on* a group of actors, for example the arrow from the economic social structure towards the general public represents the growth of GDP making car ownership more affordable, and changes in relative prices which made car use more attractive than public transport. A double arrow represents the impacts *of* the public's actions *on* the transport social structure and vice versa. The changes to the transport social structure influenced the analysts and policy entrepreneurs (following Kingdon, 1995), who influenced the decision-makers – initially to increase road building, then to cut it back. Those decisions had further impacts on the transport social structure, creating a feedback loop.

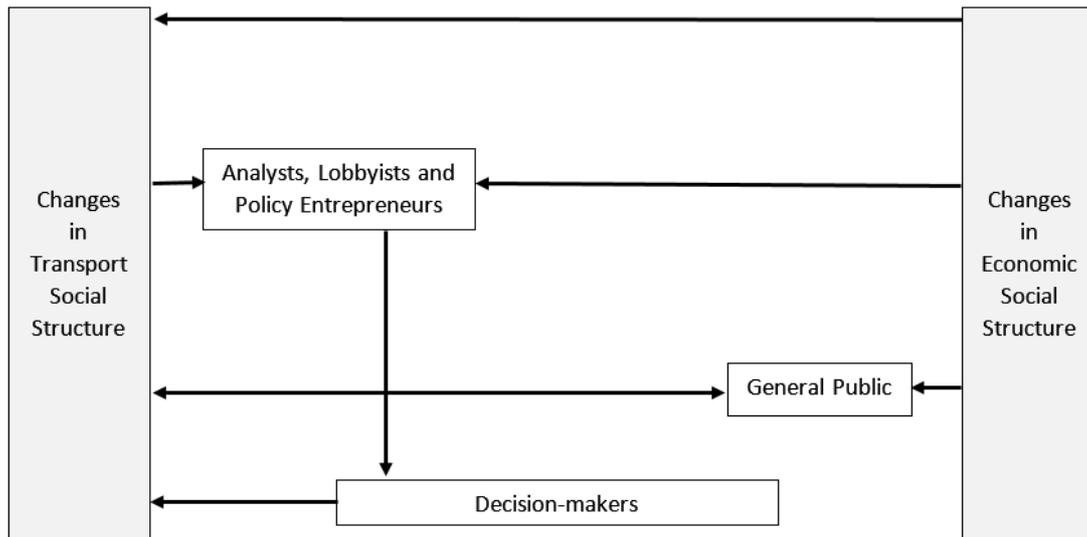


Figure 2 – The Rational Response Causal Mechanism

Criteria 3 was not difficult to satisfy; most changes at the empirical level can be retrospectively explained by changes in underlying social structures. Criteria 4 was more demanding, and led to the elimination of several explanations proposed by the interviewees. For example, some interviewees – and some of the literature – referred to the role of industry lobbying in favour of road building, and although there was evidence that key decision-makers were influenced by lobbying between 2011 and 2013 neither the interviewees nor the literature could convincingly explain why the lobbyists were effective at that time but ineffective during the 1990s. The same was true of several economic or financial explanations applied to only one of the time periods.

The Rational Response mechanism was initially derived from New Realist analyses of events during the 1990s. Criterion 4 required that the same logic could be applied to produce the opposite outcome after 2012. The researcher was already aware of the New Realist analyses before beginning the interviews, which enabled him to ask several of the interviewees why that logic, which was widely accepted within

government between the late 1990s until the late 2000s, was no longer accepted after 2012. Several of the interviewees explained how the attempts of governments between 1997 and 2010 to restrain traffic growth were perceived to have failed. A policy of progressively increasing tax on fuel was reversed in 2000 following a protest which blocked fuel supplies across the country. Attempts to introduce national road pricing and urban congestion charging were also abandoned following public protests and negative votes in local referenda. These and other perceived failures led politicians and others within government to conclude that a return to large-scale road building was the best (or the least worst) option. The evidence of Goodwin and others about road building causing more traffic was not denied; people within government did not believe that the road building would solve the congestion problem, but as one interviewee put it “we *can* do *something* about it – surely.” At a national level, the government did not publish any forecasts of the impact of the new road building programme on overall congestion, but some local authority reports corroborated the implied assumption that congestion was expected to “get worse more slowly” with the road building than without it.

Several of the interviewees also explained the strong influence of one actor, the Chancellor George Osborne (corroborating Docherty *et al.*, 2018), who personally intervened, overruling transport ministers on some occasions, to re-orient national transport policy towards more road building.

Following this analysis Figure 2 could be re-applied to the period from 2012 to 2015. The same causal mechanisms were activated but by different changes in the social structure influencing different actors, including politicians whose personal views,

beliefs and calculations also helped to produce an entirely different outcome from the 1990s.

Following a similar process, the Public Opinion mechanism was refined and a third mechanism, the *Economic Ideology mechanism* was identified, which explained changing attitudes towards the impact of public infrastructure spending following the recession of 2008-9. Figure 3 illustrates the Public Opinion mechanism as it applied between 2012 and 2015. The greyed-out arrows leading to and from the protest movement box indicate elements of the mechanism which were activated during the 1990s but not in the later period. The absence of a protest movement after 2012 was a significant part of the explanation for the difference between the two governmental decisions.

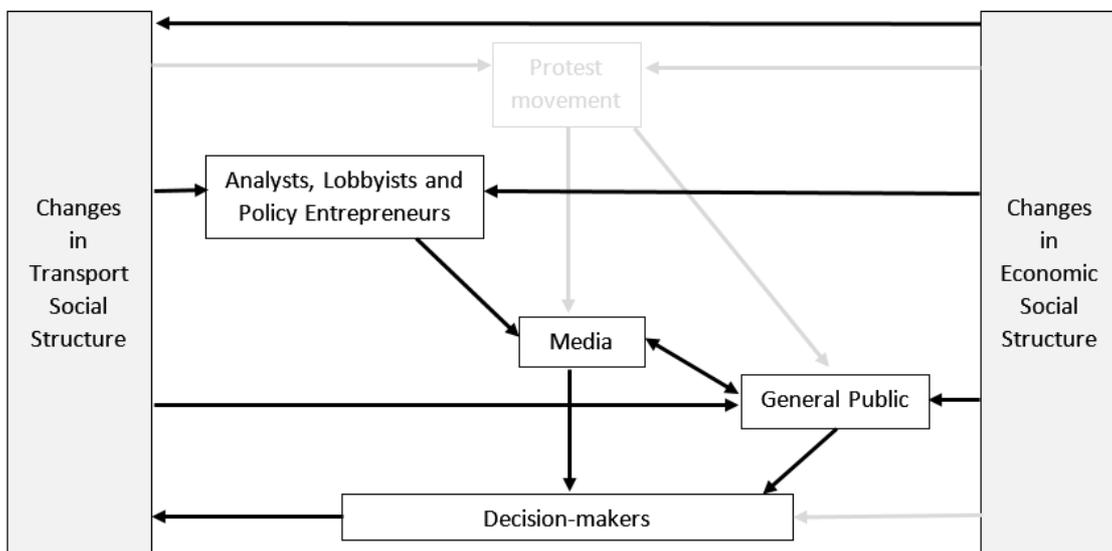


Figure 3 – the Public Opinion Mechanism 2012-15

Diagrams like the ones above illustrated the narrative explanation of the findings. They also helped to clarify the relationships between the different

mechanisms. In this case none of the three selected mechanisms contradicted any of the others (Criterion 5) so the criteria for choosing between competing explanations proposed by Bhaskar (2009) were not invoked in this case. Indeed, there was some positive reinforcement between the different mechanisms. For example, during the 1990s New Realist experts influenced public opinion through the media and through collaboration with protest groups at public inquiries. Conversely, the protestors helped to raise the public awareness and political profile of the rational analysis advanced by the New Realists.

5.3 *Drawing Normative Conclusions*

A final step (stages 10 and 11 in Figure 1) preceded the conclusions. The interviews and initial analysis were conducted as value-neutrally as possible (following: Hammersley and Gomm, 1997). This meant that the analysis and findings – Sections 1 to 6 of Melia (2019) – would be equally relevant to supporters or opponents of large-scale road building. The researcher’s normative beliefs – based partly on personal values and partly on other evidence reviewed over many years – had led him to oppose large-scale road building. This was briefly described as “an environmental perspective”. From that perspective the findings were then used to draw normative conclusions about the plans of public authorities and the potential for direct action to frustrate those plans. The implications of this approach are discussed further in Section 6.4.

6 Discussion and Conclusions

6.1 *The Process and its Applicability*

The process outlined above may be applied or adapted to any situation where:

- an anomalous comparison can be made between actions taken in two time periods (or conceivably two or more locations or contexts)
- the actors involved in, or directly observing, those actions can describe what happened and (at least at the empirical level) explain why, and:
- other data sources are available to corroborate, modify or contradict the explanations of the actors.

The juxtaposition of actions in different time periods provides one way of answering the question: ‘how would you know if you were wrong?’ Of the five criteria listed in Section 5.2, Criteria 4, applying the explanations to both time periods, was the most demanding.

The form of graphical representation in Figures 2 and 3 (which is a simplification of a more complex process) has advantages for both the researcher and for readers who may be unfamiliar with CR concepts. For the researcher, the discipline of representing the actors, social structures and causal mechanisms in this way helped to identify the key relationships and to assess how a particular explanation might fit (or fail to fit) both time periods. Could the same mechanisms be activated in different ways to produce different outcomes in the two periods?

For readers unfamiliar with CR concepts, particularly in disciplines like transport studies which are strongly influenced by positivism, the graphical representation illustrates the concepts in a concrete form, flowing from cause to effect.

Following this process also helped to reveal some limitations of CR research and explanatory research in general. One aim of CR research is to reveal the invisible relationships at the real level, including emergent properties which might not be activated. The process outlined above identified a few such mechanisms, which were activated in one period but not in the other, but that was the limit of its efficacy. As Fletcher (2017) found, each explanation leads to a deeper level, which poses the question: what caused the changes at the deeper level? The answer to that will often lie beyond the scope of the research project. This particularly applied to the economic ideology mechanism in this case. Clift (2018) provided a useful account of how the global recession of 2008-9 changed international economic orthodoxy, making it more favourable to public infrastructure spending. This study was able to corroborate the change in economic orthodoxy as it applied to transport in the UK, but what caused that recession, and why did the orthodoxy change in the (limited) way that it did? Those contested questions would lie beyond the scope of any single case study.

6.2 *The Transport Social Structure*

One important finding of this study was that economic factors, though clearly important, were not sufficient explicators of changing transport policy – as sometimes assumed in the positivist literature and suggested by some of the interviewees. The change in economic orthodoxy after 2009 had only a limited impact on overall public spending on infrastructure – road building (along with high speed rail) was a favoured exception. The analysis revealed how past decisions and material conditions (such as infrastructure, levels of traffic and congestion and relative prices) can directly or indirectly influence the decisions of transport planners and politicians with responsibility for transport policy. It suggested the existence of a transport social

structure, which, following Archer (1995) influences and ‘predates’ (in a feedback loop) the actions of politicians, professionals and the travelling public. Archer also emphasises the cultural dimension of social structures. The existence and influence of ‘transport culture’ on individual travel behaviour and transport decision-making has been widely recognised (e.g. Aldred and Jungnickel, 2014, Sheller, 2004) as have the structural influences of material conditions and socially-constructed ‘meanings’ (e.g. Hampton, 2018, following Shove *et al.*, 2012). However, the ‘flat ontology’ assumed in much of this literature makes it difficult to analyse the influence of power or past decisions on current transport outcomes. To do that requires the acknowledgement of a transport social structure existing at the deeper ‘real’ level.

It was not the purpose of this study to investigate the properties of the transport social structure. For an applied study it is sufficient to observe evidence of changes in the social structure which triggered causal mechanisms. A deeper investigation of the transport social structure would merit further research.

6.3 *Can we Say Which Explanations are Most Important?*

The findings of this study provide some grounds to reconsider Hodgson’s (2004) challenge to researchers to decide which are the most important explanations. This study did not attempt to rank the three causal mechanisms in terms of importance; it identified no valid method for doing that. It did, however, reveal how the three mechanisms interacted with each other.

CR ontology implies that nothing is predetermined; any combination of mechanisms and circumstances might produce a different outcome if actors with agency

decide to act differently. This makes the interactions between overlapping structures, mechanisms and actors unpredictable. The only thing which can be stated with confidence in this case is that if one of those mechanisms had not been activated, the outcome would have been different *in some way*. This raises two fundamental questions for explanatory research: is it meaningful (in any, some or all contexts) to describe some causal mechanisms as ‘more important’ than others, and can relative importance be measured? In contexts where strong or persistent demi-regs are observed the question may be meaningful; quantitative methodologies may be used to estimate the relative importance of different causes – at the intermediate ‘actual’ level. The relationship between the built environment and transport outcomes (following Næss, 2015) is one example of this. As Næss (2019) points out, the estimation of risks, based on observed demi-regs, is essential to many of areas of public policy.

However, when applying CR analysis to political decisions, where each context is unique and factors interact in unpredictable ways, it would not be possible to use quantitative methods. Researchers could seek the opinions of decision-makers on which causes were more or less important and could form their own judgement on the validity of those opinions but it is not clear how any such judgements could satisfy the “how would you know if you were wrong?” test (of Marsh and Savigny, 2004). This is clearly an epistemological problem; whether more or less important causes exist at an ontological level may be impossible to verify.

This uncertainty poses problems for protest movements and environmental NGOs, on which this project partly focussed (Melia, in press). Most protest movements and many NGOs seek to change political decisions, which requires them to anticipate

the factors most likely to achieve such change. Although such movements may learn from the successes and failures of the past, the interaction of their efforts with other factors is likely to produce unpredictable outcomes. Their strategies and tactics are often based on faith, including some element of self-deception such as the recurring belief that direct action might prevent the completion of infrastructure projects already under construction.

6.4 An Alternative Approach to Moral Realism

The final steps of the process illustrate a practical challenge and a potential to sidestep the debate around moral realism. Even if we accept Bhaskar's arguments in favour of an objective morality, and reject the arguments of Hammersley (2009), fallible researchers drawing normative conclusions from empirical studies would need to explain and justify the basis for applying moral judgements, which they believe to be objectively defensible. In this case, as in many others, the researcher's normative position, formed of ethical values and an accumulation of evaluative judgements (based partly on facts, as postulated by Bhaskar, 1998b), would take longer to justify than the study itself. As Richards recognises in his defence of naturalist moral realism, such arguments are unlikely "to convince anyone who has not already been thinking along similar lines" (Richards, 2019 p.290).

The justification for the approach taken here is therefore partly pragmatic. Its use is consistent with either side of the debate around objective morality. By proceeding reflexively and transparently, separating the value judgements from the evaluative judgements, the researcher may use the findings to make normative recommendations, whilst allowing others to form their own judgements about the

methods and conclusions. As illustrated in Figure 1 this approach implies an addition to the RRREIC schema, becoming RRREICR.

6.5 The Potential for CR Research in Transport Policy Studies

Section 3 discussed the prevalence and shortcomings of technical-rationalist explanations in transport studies, but the findings of this study derived partly from an earlier technical-rationalist explanation (Goodwin, 1999). This suggests two important conclusions in respect of such explanations. A technical-rationalist explanation may help to draw normative conclusions, which may be used to call for policy change. It may also provide part of a CR explanation, where there is evidence that it influenced actors involved in the events under study. Both of those conditions applied in this case.

That said, the decisions made by politicians often puzzle and frustrate academics and professionals who spend their working lives trying to draw rational conclusions from empirical evidence. This is particularly true in transport studies and particularly in the UK where professors from the main transport centres have twice written to Transport Ministers urging them to change policy direction (Transport Planning Society, 2013). Most of those academics and professionals would acknowledge that deeper forces influence political decisions but there have been very few systematic attempts to identify and analyse them. CR provides some powerful insights and potentially powerful methods to investigate those forces and the influence that citizens can potentially wield against their more damaging effects. It has an emancipatory potential in transport as in other fields. Marsden and Reardon (2017) rightly drew attention to the shortcomings of existing approaches in transport studies and a gap in the

transport policy literature. This study has illustrated the potential for CR methods to fill at least part of that gap.

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