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A new framework to understand the drivers of policy mixes in multilevel contexts: The case of urban air pollution

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Abstract

The literature on policy mixes tends to focus on the instruments that different jurisdictions adopt to tackle public problems, and how policies may complement or conflict with each other. Fewer studies examine the factors that influence instrument choice, particularly within multilevel contexts, despite a recognition that policy mixes to tackle similar issues vary substantially across and within countries. We present a new framework to help understand and predict policy choice in subnational governance, arguing that the level of local support for action influences the *type* of policy a city adopts, whereas top-down drivers shape the *breadth* of instruments it deploys. Drawing on in-depth stakeholder interviews and documentary analysis, we apply this framework to explain why two contrasting English cities selected their own distinctive policy mixes to combat air pollution. We suggest that where top-down drivers for action are strong but bottom-up support is muted, as was the case in Nottingham, municipal governments are likely to adopt a broad range of largely (re)distributive, informational and administrative instruments to tackle policy problems. Where local support is strong, as in Westminster, city authorities prefer to introduce regulations, because restrictions entail fewer political costs in these contexts and are more likely to be effective.

KEYWORDS
air pollution, England, local choice, multilevel governance, policy instruments, policy mixes, transport policy

1 | INTRODUCTION

Studies into 'policy mixes' have stressed that governments should adopt a range of complementary instruments to address complex public policy problems (Gunningham & Sinclair, 1999; Kivimaa & Virkamäki, 2013; Rogge et al., 2017). This literature has highlighted the potential problems associated with introducing new, conflicting, instruments (Howlett & Rayner, 2007), the importance of coherence and collaboration across different governing institutions (Howlett et al., 2017; Huang, 2019) and the need to work with non-state actors to develop more effective policy responses (Ingold et al., 2019; Klein et al., 2017). At the same time, it has provided useful insights into the methods that governments adopt to try and achieve their objectives, and comparative studies have highlighted significant contrasts between the approaches of different countries (Bailey, 2007; Kern et al., 2017).

However, most studies have focused on nation states and, being largely quantitative in nature, tend to examine *how* governments seek to steer and change the behaviour of market actors and/or individual citizens through distinct instruments. We know less about the factors

that influence *why* policymakers might select a specific blend of policies to achieve their objectives (particularly at the local level), despite widespread acknowledgement that the instruments a governing actor employs can reveal a lot about how they seek to govern (Capano & Howlett, 2020; Jordan et al., 2005; Lascoumbes & Le Gales, 2007). Many studies have focused on the environment and energy sectors, and bear remarkable similarities to the parallel literature on urban climate governance that has flourished in recent years. However, scholars have only recently begun to bring these strands together to try and understand why municipal governments may be choosing specific types of policy to address environmental issues (Krause et al., 2019; Lesnikowski et al., 2020; Mahzouni, 2015). This is surprising, given that such choices could tell us a great deal about the relations that subnational bodies have with both central government and local societal actors.

In this paper, we present a framework to help explain and predict how 'top-down' and 'bottom-up' drivers shape policy instrument selection at the local level; specifically, the *breadth* and *type* of initiatives that subnational governments adopt, respectively. In applying this framework to the case of air pollution in two politically, economically and socially contrasting English cities (Nottingham and Westminster), we show how these drivers led to the municipalities adopting different policy mixes to achieve ambitious objectives. In Westminster, high levels of public support led the municipality to be more in favour of regulatory instruments, whereas less local support for restrictive policies in Nottingham meant that the council was very reluctant to rely on coercion to change behaviour. Instead, Nottingham responded to central government pressure for action, and the availability of various funding streams for specific initiatives, by adopting a broader range of (re)distributive, informational and administrative policies that had less direct impact on residents.

In the next section we discuss the literature on policy instruments and mixes and develop our framework to explain the drivers of instrument choice in multilevel contexts. We then set out the rationale for our case selection and methodological approach. Finally, we outline our findings, discuss their implications and finish with our conclusions.

2 | POLICY INSTRUMENTS, POLICY MIXES AND MULTILEVEL GOVERNANCE

The literature on policy mixes and instruments can be traced back to Lowi's (1972) classification of different public policy types. Lowi categorised policies according to whether they (a) were *distributive* (involved the provision of universal services and infrastructure such as public transport), (b) sought to *redistribute* resources from one group of societal actors to another, (c) introduced new *regulatory* obligations upon societal actors or (d) were *administrative* (sometimes termed *constituent*) in the sense that they led to changes in governmental administration. Later innovations, such as Christopher Hood's 'Tools of Government' typology (Hood, 1983), the literature on policy 'styles' (Bailey, 2007; Howlett, 1991; Richardson, 1982) and 'green state' theories (Duit, 2016), built on this initial typology by trying to link a preference for certain policy types to administrative traditions and/or the political economy literature. More recently, the emergence of 'co-production' and 'nudge' approaches have highlighted the importance of *informational* instruments in the design of policies: public campaigns to engage with and persuade citizens and organisations to change their behaviour (John et al., 2009; Tosun & Treib, 2018).

Governments often need to adopt a range of complementary instruments to address complex public problems (Gunningham & Sinclair, 1999; Howlett & Rayner, 2007; Rogge et al., 2017). In addition, however, the precise blend of different policy types that policymakers adopt can provide us with useful information about the role of the state in society and how governments seek to govern (Lascoumbes & Le Gales, 2007), and tracking, comparing and monitoring different types of instruments across jurisdictions is relatively straightforward (Jordan et al., 2005). This makes the study of policy mixes a potentially fruitful avenue to pursue to compare governance approaches across spatial and temporal dimensions—even if it remains a relatively under-researched area (Lesnikowski et al., 2019).

Yet, much of the policy mixes literature focuses on the efficacy of different policy types, or examines the extent to which new instruments may complement or conflict with existing policies or the approaches of other policy actors (Del Rio, 2014; Howlett & Rayner, 2007). Fewer studies seek to examine *why* governments choose to adopt a particular blend of policies to address a certain issue, or seek to develop theories that might underpin such empirical research—despite Lindner and Peters (1989) calling for more work in this area more than three decades ago. It is only recently that scholarship has stressed that instrument selection is part of the policymaking process, and we therefore need to study the power relationships that shape these choices in order to gain a greater understanding of why state actors seek to address public problems in particular ways (Edmondson et al., 2019; Howlett et al., 2017).

This is particularly the case within multilevel systems, where power dynamics operate in multiple directions and which can exhibit substantial variance in the instruments they adopt to tackle similar problems (Matti et al., 2017). This may be due to various factors: for example, municipalities that suffer from resource constraints, operate within a context of restricted autonomy and/or receive limited local support for their policy strategies may be less able to push through potentially controversial initiatives (Glaus, 2021; Lesnikowski et al., 2020). As research on multilevel climate governance has identified (e.g., Kern, 2019), such developments may have contributed towards increasing divergence in local policy mixes, particularly in countries where significant contextual differences exist between different areas. Hitherto, however, environmental policy scholars have largely neglected to cover this issue outside of climate or energy policy. This is surprising: comparative studies of municipalities within the same state could help to control for various intergovernmental variables, such as any legal standards for compliance and their degree of legal autonomy to raise revenue and develop policy. They could therefore assist in identifying how specific contextual factors (such as the role of influential policy actors, the degree of bureaucratic capacity, the longevity and/or ideological preferences of a political

TABLE 1 High-level policy types and examples of air quality initiatives

	Details	Air quality examples
Regulation	Introducing hierarchical standards, restrictions, financial penalties or charges to trigger behaviour change. State actors rely on legal and/or coercive techniques to enforce them where necessary	Smoke-free zones; congestion charges; banning vehicles from entering certain streets; levies or taxes on more polluting goods and services
(Re) distribution	Providing or subsidising public goods, services and infrastructure either universally or to target groups. Such initiatives enable or incentivise societal actors to choose less polluting ways to conduct their lives	Public transport provision; cycling infrastructure; district heating systems; park and ride schemes; financial subsidies to reduce pollution
Information	Organising information campaigns, advertising, labelling schemes or 'nudge' techniques. These aim to change behaviour voluntarily but do not extend the range of alternative mechanisms through which societal actors can conduct their lives	Advertisements highlighting the health impact of air pollution or promoting more sustainable alternatives; public events or direct engagement with citizens and businesses; making less polluting options (such as sustainable transport) the default option in public discourse and literature
Administration	Establishing, expanding or reforming organisational functions and operations that are responsible for the development, implementation and/or delivery of policy	Creating an air quality unit with the local authority; appointing or re-allocating staff to work on air quality projects; gathering information or undertaking research into possible policy options

administration, or the sociodemographic make up of a particular city) might lead to the adoption of a particular policy mix. As such, they might help to develop theory around the drivers of policy choice and introduce a more causal element into the literature.

Air quality represents an interesting case to examine how such local variables might affect policy mixes. According to the European Environment Agency, poor air quality causes nearly half a million premature deaths every year in Europe, predominantly in cities (EEA, 2019). In addition, the 2015 Volkswagen diesel scandal and a number of subsequent court cases have contributed to increased public awareness of the scale of the problem in recent years, and therefore we might expect governments to be tackling the issue. This is particularly the case in the UK (Maltby, 2022), where 9-year-old Ella Kissi-Debrah died in 2013 as a result of acute respiratory failure that a coroner subsequently attributed directly to high levels of air pollution near her home (Laville, 2020). Furthermore, the EU requires its member states to meet legal air quality limits, but pollution is both highly localised and multifarious. Therefore, the policies that different cities adopt to tackle the problem might reveal some interesting findings about how multilevel governance and state-societal relations in Europe operate under a 'shadow of hierarchy' (Scharpf, 1994) at the supranational level.

Governments are unlikely to introduce single instruments in isolation. Drawing on the four different types of policy that are frequently conceptualised in existing literatures (Hood, 1983; Howlett, 1991; Capano & Howlett, 2020), we can see how they may seek to adopt a 'consistent or complementary' mixture of: *regulations*, financial penalties or charges; changes to the delivery of (universal *distributive*) public services; targeted (*re*distributive) initiatives; education or awareness-raising *informational* campaigns; and new *administrative* functions to help with policymaking and implementation (Capano & Howlett, 2020, p. 2). In the case of air pollution, for example, they might introduce *regulatory* restrictions on vehicle movements or fuel combustion, expand *distributive* public transport networks, provide *redistributive* grants to finance cleaner activity, fund *informational* campaigns to try and persuade societal actors to change their behaviour, and set up new *administrative* functions or deploy specialist staff to manage the programme of activity.

Although one could split each of our types into various subcategories, we felt that focusing on the four high-level distinctions would make the typology relatively straightforward for scholars and practitioners to understand and apply. Table 1 sets out these categories, along with examples of urban air quality initiatives that correspond to each type.

3 | A NEW FRAMEWORK TO EXPLAIN THE DRIVERS OF POLICY MIXES IN MULTILEVEL CONTEXTS

From the policymaker's perspective, different policy types have advantages and disadvantages. *Regulations* are normally relatively cheap to introduce and often effective in changing behaviour, but coercive restrictions of this nature are more likely to be opposed by societal actors and enforcement can be difficult and resource-intensive (Wurzel et al., 2003; Pacheco-Vega, 2020). For their part, *(re)distributive* policies may be necessary to ensure that actors can opt for more socially-responsible alternatives and are often politically popular. However, they can be expensive and make it easier to identify 'winners' and 'losers', which might trigger societal opposition (Kuhlmann & Blum, 2021). Societal interests are less likely to oppose

informational instruments, which are relatively easy to introduce because they are cheap and do not involve coercion (Glaus, 2021; Kirschke & Kosow, 2021; Lesnikowski et al., 2020). However, their voluntary nature means they are less likely to result in the level of behavioural change that might be necessary to achieve policy objectives (Niles & Lubell, 2012). In the specific case of air quality, for example, a recent study found that '*only* [command and control] regulations that are put into practice through well-equipped and -designed implementation structures can be systematically associated with reductions in air pollutant emissions' and that 'new' environmental policy instruments (such as advertising campaigns) 'do not make *any* difference' (Steinebach, 2022, p. 14, our emphasis; see also Pascal et al., 2013; Taylor et al., 2012). *Administrative* instruments, whilst often necessary to develop new policy ideas and manage the delivery of programmes, tend to be procedural in nature and therefore unlikely to effect significant change in the absence of complementary substantive policies (Bali et al., 2021).

Given these considerations, a preference for certain instrument types can reveal the extent to which governments—at any level—are prepared to challenge societal interests in pursuit of their policy objectives (Jordan et al., 2005; Lascoumbes & Le Gales, 2007). Although we recognise that other factors, such as the 'stringency' of specific regulations, can tell us a great deal about the extent to which governments seek to address environmental problems (Burns et al., 2020; Gravey & Jordan, 2016), we nonetheless suggest that the *type* of instrument a government adopts is a useful proxy indicator for its policy ambition. Specifically, governments that are keener to tackle pollution are more likely to include regulatory instruments in their policy mix. Furthermore, given that regulatory policies are probably more likely to achieve environmental objectives, 'greener' societies may be more willing to tolerate or welcome their introduction (Hughes & Urpelainen, 2015). As such, although progressive environmental policies do sometimes reflect political ideology (Carter, 2013), and we might expect liberal political parties to be more reluctant to introduce restrictive regulatory instruments, we nonetheless suggest that governments tend to reflect the policy preferences of their constituents. In contrast, governments that represent less environmentally ambitious societies probably rely more on informational policies (and, indeed, fewer instruments overall), because these entail lower political costs. Similarly, we can see how policymakers might take the same political cost–benefit considerations into account for (re)distributive and administrative instruments, because greener societies would be more likely to welcome expensive policies, and new functions to oversee them, when compared with societies in which environmental concerns are less salient. We can therefore adopt the amount of resources that governments allocate to specific (re)distributive and administrative initiatives (such as infrastructure projects, subsidies for cleaner alternatives or organisational delivery functions) as another proxy indicator of ambition.

In addition, governments that seek to address environmental problems may adopt a broader range of different initiatives: this means more policies overall (what Knill et al. [2009] describe as policy 'density'), and greater diversity of initiatives and target groups (Fernández-i-Marín et al., 2021). Therefore, alongside the *type* of instrument that governments adopt, we suggest that the *breadth* of initiatives operates as another dimension of policy ambition. Less ambitious governments deploy fewer instruments and a more limited range of policies, and target fewer societal groups. However, in cases where higher tiers of government want municipalities to tackle a specific problem, and there is limited support for action at the local level, central actors may well provide funding streams and advice to help local authorities address the issue and set targets to drive compliance. Municipalities may therefore introduce a broader range of (non-regulatory and therefore less politically controversial) instruments because (a) they can access the necessary resources and (b) they are obliged to meet central requirements.

Air quality is a key case in point here: cities across Europe are required by EU law to keep levels of certain pollutants (notably nitrous oxides [NOx] and particulate matter [PM10 and PM2.5]) below specific levels, yet the regulatory instruments that are more effective in reducing this pollution often trigger societal opposition. One local response to this dilemma could be to seek out external funding to introduce (re)distributive, informational and administrative instruments, particularly where local government has limited resources. Where this funding is ring-fenced for specific activities or projects that the municipality might otherwise not consider undertaking, or staff that the authority would otherwise not employ, we can see how the influence of central actors can extend the breadth of instruments within the local policy mix. Conversely, if central drivers for action are weak, such funding streams and legal requirements will probably be extremely scarce or non-existent, resulting in a more limited policy mix at the local level. In situations where subnational governments operate within resource constraints, this might even be the case if local drivers for action are strong, because such municipalities may wish to focus their limited resources on developing policies that have a better chance of being effective, that is, regulations. We might only expect local authorities to invest in higher-cost (re)distributive policies and expanded administrative functions in situations where they have sufficient internal resources to develop an extensive policy mix. Given that central governments normally play a key role in shaping resource availability at the local level through constitutional and funding arrangements, we can see how subnational bodies are often quite restricted when it comes to developing their own policy portfolios.

With this in mind, we suggest that multilevel dynamics affect instrument selection at the subnational level and also help to distinguish between two different dimensions of policy ambition. Local factors shape the *types* of instrument that a subnational authority incorporates into its policy mix, whereas top-down pressures largely influence the *breadth* of policies that it adopts. In addition, any changes in the local political context, and/or in central-local relations, would probably have a concomitant impact on instrument selection within the municipality.

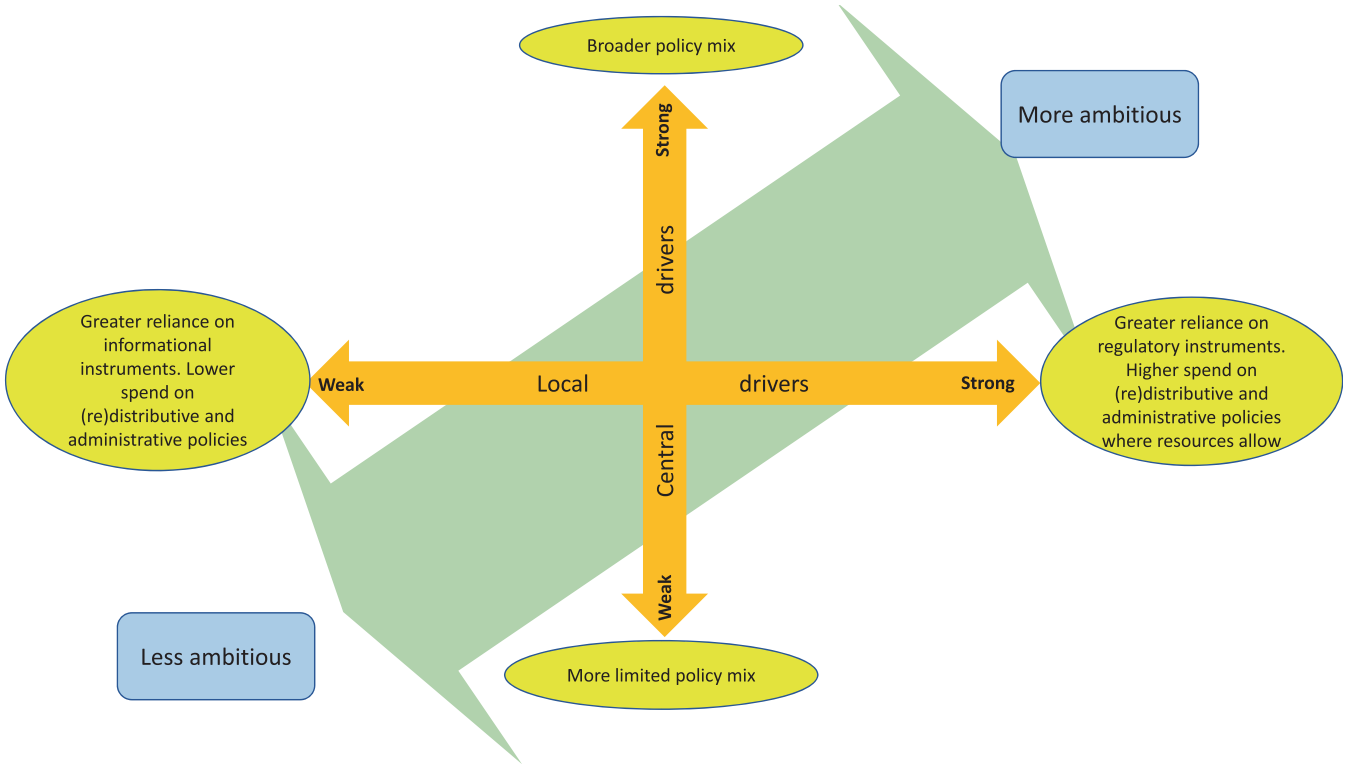

FIGURE 1 Framework to examine central and local drivers for policy instrument selection [Color figure can be viewed at wileyonlinelibrary.com]

We present these dimensions visually in Figure 1, and use this diagram as a heuristic to illustrate our empirical findings. On the basis that these dimensions are also indicative of policy ambition, we also suggest that the further a municipality is located towards the top-right corner of the diagram, the keener it is to tackle the policy problem. Addressing each of the quadrants in a clockwise direction, and beginning in the top-left corner, we propose the following:

- Where central drivers for action are *strong* but local support is *weak*, subnational governments will adopt a *broad* policy mix, which relies largely on *informational* instruments and *lower-budget* (re)distributive and administrative policies.
- Where central drivers for action are *strong* and local support is *strong*, subnational governments will adopt a *broad* policy mix, which relies more heavily on *regulatory* instruments and *higher-budget* (re)distributive and administrative policies.
- Where central drivers for action are *weak* but local support is *strong*, subnational governments will adopt a *limited* policy mix, which relies more heavily on *regulatory* instruments. If the subnational government has sufficient resources, this may be complemented by *higher-budget* (re)distributive and administrative policies.
- Where central drivers for action are *weak* and local support is *weak*, subnational governments will adopt a *limited* policy mix, which relies largely on *informational* instruments and *lower-budget* (re)distributive and administrative policies.

4 | METHOD

At the time of conducting the research in 2019, European Union regulations on air quality still applied in the UK, and therefore English municipalities were subject to top-down pressure to reduce levels of pollution. Levels of NOx, PM10 and PM2.5 exceeded the EU's standards in many cities, and air quality was a prominent public issue (Maltby, 2022). This was particularly the case in the two cities we selected: Nottingham (in the East Midlands region) and Westminster (in central London), despite the fact that they had achieved national recognition for their sustainability initiatives. Westminster was the first council in England to produce an air quality manifesto and action plan (WCC, 2018, 2019), and Nottingham committed to become carbon neutral by 2028—the earliest date for a UK local authority (Drury, 2020). Combined with the fact that both cities were characterised by prolonged periods of political stability (Westminster was a Conservative Council from its creation in 1964 until 2022, after we completed our fieldwork; Nottingham, by contrast, has been a Labour Council since 1991), we felt that this would have helped the municipalities to develop a coherent mix of ambitious instruments to tackle air pollution.

At the same time, there are important sociodemographic and governance differences between the two cities, which we expected would result in contrasting levels of bottom-up pressure for action. In 2019, Nottingham was considered to be the 10th most deprived local authority area in England, whereas Westminster was ranked 134 out

of 317 areas. Most notably, Westminster's ranking of 293 for education, skills and training shows that it has a much better-educated population than 14th-ranked Nottingham (all figures from Ministry of Housing, Communities and Local Government, 2019). Given that cities with wealthier and better-educated citizens are more likely to act on environmental concerns (Bedsworth & Hanak, 2013; Haupt et al., 2022), we expected local pressure for action on air pollution to be greater in Westminster than Nottingham. Another contrast is the fact that Westminster sits within the broader Greater London Authority area under the jurisdiction of the Mayor of London, who has responsibility for public transport across the capital. Although Nottingham collaborates with neighbouring local authorities in the East Midlands on many issues, there is no comparable statutory body to oversee and coordinate this activity within the region. The presence of an additional tier of governance in Greater London increases the likelihood that policymakers operating 'above' the municipal level might direct and support local authorities to introduce air quality initiatives, and result in Westminster adopting a broader policy mix than Nottingham.

With these similarities and contrasts in mind, we were less interested in categorising our cases in terms of the specific policy mix they adopted, and more concerned with the drivers that shaped instrument selection. Basing our analysis on the framework in Figure 1, we focused specifically on how vertical drivers (e.g., EU regulations and the UK government in both cases, and the London mayoral authority in Westminster), as well as the level of local support for action, shaped each city's specific policy orientation.

We examined EU and UK legislation on air quality, council documents (such as both cities' air quality strategies), as well as publications from prominent NGOs active in each city, to understand the legal, political and environmental contexts within which each municipality operated. We also conducted in-depth, semi-structured interviews of up to 2 h in length with a total of 17 people. Eleven of these interviewees were based in Nottingham, including local council officers responsible for environmental health, regulatory enforcement and transport, as well as voluntary organisations and elected representatives (one Councillor and one MP). The remaining six were based in Westminster and Greater London, including local authority officers responsible for environmental health and transport, an elected Councillor and staff at Transport for London. Given that English local government has experienced major funding cuts since 2010, significantly fewer members of staff are now responsible for environmental policy functions than was the case in the past (Eckersley & Tobin, 2019), and we were able to speak to most of those individuals who had responsibilities in this area.

We examined our data by the means of 'thematic analysis', which due to its 'theoretical freedom … provides a flexible and useful research tool' within the qualitative methodological strand (Braun & Clarke, 2006, p. 78). The six standard steps of the thematic analysis (familiarisation of the data; generation of the initial codes; a search of the themes; a review of the themes; themes' naming and writing up of the findings) (Nowell et al., 2017) were informed by our framework and research puzzle. As such, we categorised each city's policy instruments according to our four overarching types (as discussed in Hood, 1983; Duit, 2016)—and identified which local and central actors were mentioned within the analysed texts and interviews as influential in their selection. Hence, the analytical toolkit included the following categories: (1) which policy instruments corresponded to which type ((a) regulation, (b) (re)distribution, (c) information, and (d) administrative); (2) which governmental institution shaped the policy decision ((a) UK national government; (b) EU authorities; (c) a local government); and (3) the impact of contextual factors at the subnational level ((a) popular support; (b) political context; (c) economic context). All interviews were analysed by at least two researchers to ensure reliability and replicability of the results.

TABLE 2 Examples of policy instruments to improve air quality in Nottingham and Westminster

	Examples from Nottingham	Examples from Westminster
Regulation	Workforce Parking Levy (WPL); tighter restrictions on older taxis driving in the city	Congestion charge; Ultra-low emissions zone (ULEZ); additional parking charges for diesel vehicles; 'no pollution zones' around schools
(Re) distribution	Extension of the tram network; roll-out of public electric vehicle charging points and grants for employers who wish to install them; retrofitting diesel buses; providing jobseekers with travel cards and second-hand bicycles	Roll-out of electric vehicle charging points; extension of cycling infrastructure
Information	Public events to promote electric vehicles in the city; trying to persuade taxi drivers to buy less-polluting vehicles; 'anti-idling' campaign to persuade motorists to switch off their engines outside schools	'Anti-idling' campaign to persuade motorists to switch off their engines outside schools
Administration	Appointing new officer to manage and promote the rollout of electric vehicle charging infrastructure; expanding the network of air quality monitors across the city	Commissioning a study into air quality policies adopted elsewhere; conducting air quality and energy efficiency audits in schools

Source: NCC (2017, 2019), WCC (2018, 2019) and fieldwork interviews.

5 | FINDINGS

Interviewees in both cities stressed that local government had very limited influence over some sources of air pollution. In Nottingham, these included agriculture and industry located elsewhere, as well as long-distance diesel trains that travel through the city centre (interviews 1 and 10). As far as Westminster was concerned, the Mayor of London exerts significant influence over strategic planning, particularly transport policy, although the authority has supported many of his initiatives in recent years (interviews 11 and 13). Nonetheless, both cities adopted a range of different policy instruments as part of their approaches to combating air pollution. Drawing on the typology and examples set out in Table 1, these initiatives are summarised in Table 2.

5.1 | Policy drivers and policy choice in Nottingham

In Nottingham, the key driver of air pollution policy was to comply with top-down legal requirements: the city operated under the shadow of hierarchical intervention from central government, which in turn was shaped by European regulations. In particular, its overriding objective was to reduce levels of NO_x below what was the EU's legal limit of 40 μg per cubic metre per year, in order to ensure that the UK Government would not force the municipality to introduce a clean air zone. Indeed, the council expanded its network of air quality monitors to measure air quality in key hotspots and thereby demonstrate that it was trying to comply with these minimum standards (DEFRA, 2017; NCC, 2018; interviews 1, 2 and 6). Such a zone would have probably involved either additional charges for higher-polluting vehicles or other traffic restrictions, as part of a wider portfolio of initiatives to ensure that air quality met EU standards. The UK government had stated that a zone would need to be introduced from 2019 onwards if pollution did not fall below this level, and staff in the municipality were very keen to meet this target because of concerns that coercive regulations of this type would be electorally unpopular:

> Politically you just have to be mindful that we have already got the workplace parking levy..., so we just have to be a little bit careful of how a clean air zone would sit alongside that... we want to do it in as sustainable a way as we can, we want to do it through encouraging, not banning if you like. (interview 1)

To illustrate this further, during 2018 it became clear that NO_x levels would fall below the 40 μg limit, and people in the authority were very pleased about this outcome (interview 2). Clearly, there was very little bottom-up support for regulatory instruments in Nottingham, yet the municipality recognised that it needed to tackle air pollution in order to avoid such restrictions being introduced.

Concerns about the political impact of introducing such policies extended to how the municipality dealt with other sources of air pollution. Although council staff recognised that poor air quality often has a disproportionate effect on people on lower incomes (interview 4), they were acutely aware of the fact that many poorer residents had far bigger concerns. For example, even though the UK's Clean Air Acts—which date back to the 1950s—are supposed to restrict domestic fuel combustion, the council was extremely reluctant to take action against residents who produced particulate emissions from burning wood, coal or other combustible materials in domestic open fires, stoves, gardens and allotments. This was particularly the case given the levels of fuel poverty within the city:

> There'll be a group of people who don't have particularly efficient wood stoves, but it's really cheap heating, you know, if you get one put in, you can use fallen wood, wood off-cuts, all sort of things, and there are people in an economic situation where that's their main source of heating... You cannot take away people's right to heat their homes. (interview 10)

A related issue here was the capacity of the municipality to enforce clean air restrictions. Theoretically, local government is supposed to enforce the Clean Air Acts by monitoring changes in air quality and notifying polluters, but this can be very resource-intensive and many English councils are reluctant to intervene (DEFRA, 2014). Interviewees in Nottingham agreed that the city had more important political priorities, and argued that they should focus its limited resources on other issues:

> We've got lots of community protection officers who have powers to do stuff but ... at the moment they're under so much pressure ... to deal with rough sleeping and begging and crime in the city centre, you know, they're pushed hither and thither. So, Fred Bloggs having a fire in his back garden isn't your biggest priority really. (interview 3)

Moreover, the costs of Nottingham's workplace parking levy—the city's major regulatory initiative—are borne disproportionately by non-residents and therefore people who do not vote in council elections. 'Greater Nottingham' extends beyond the area covered by the city council into the surrounding county: more than half of its population lives outside the city boundary in wealthier suburbs that form part of neighbouring districts, and many of them commute by car into the urban centre (interview 2, see also Cauvain, 2018). This is one reason why Nottingham is the least car-dependent city in England outside London (Nottingham City Council, 2012, interview 4), and it means a smaller percentage of its voters are affected by the parking levy than would be the case in other urban centres. Indeed, interviewees felt that its comparatively low political costs were a key reason why the idea was introduced in the first place (interview 2).

Additionally, the council introduced the parking levy to reduce congestion (a key concern of many residents), rather than improve air quality. This made it easier to win public support—even though many

businesses were implacably opposed to it (interview 1). The city also promised to use the revenue generated by the scheme to invest in an extension of the tram network and improve local buses. By framing it as a redistributive rather than regulatory initiative, this also made the idea more palatable for politicians and local businesses (Winter & Le, 2020), and also illustrated how the council was keen to develop a broader policy mix:

> It was a big decision for the council to make, to be the only authority to do this [introduce a workplace parking levy]. They were aware that it could be quite controversial… like a 'tax on business' or a 'tax on jobs'. But our politicians basically took the view that actually if you're going to invest in the city, the tram made perfect sense. We want to develop a clean, green modern city, you've got to invest in high quality public transport and they were prepared to take that risk. (interview 2)

Similarly, another more restrictive policy that Nottingham has introduced—to be granted a licence to operate, taxi drivers now need to operate cleaner vehicles—went hand-in-hand with several (re)distributive initiatives. These included the roll-out of electric charging stations at taxi ranks, a scheme that allows taxi drivers to try out electric vehicles for a limited time before agreeing to buy them, and the provision of grants to fund the retrofit of older private hire vehicles (NCC, 2017, interviews 2, 7 and 8).

The municipality also adopted a range of different policies when trying to educate and persuade residents to change their behaviour. For example, alongside advertising campaigns and events to encourage cycling, it provided grants for employers to fund bicycle storage units or showers for staff (interview 7). Nottingham also complemented the roll-out of electric charging points with high-profile events, press releases and social media activity to raise awareness of the new infrastructure—often with the active involvement of local volunteers (interviews 7 and 9). Notably, many of these initiatives were funded by central government, including a new post to manage and promote the rollout of electric charging points (interviews 2, 7 and 10), illustrating how such top-down influences shaped the breadth of Nottingham's air pollution policy mix.

This approach sweetened the bitter pill of 'harder' regulations for those directly affected (and thereby reduced potential opposition to them), and also encouraged local actors to utilise the infrastructure it provided through active distributive policies. However, the fundamental driver of its air quality policy was the desire to meet minimum legal standards and thereby avoid the need to introduce more restrictive initiatives that policymakers feared would be politically unpopular. If Nottingham had not been required to bring levels of pollutants below the EU threshold, the municipality would have been far less likely to bid for central government funding to extend the electric vehicle charging infrastructure and associated administrative functions (interviews 7 and 10). As such, we can see how Nottingham's context of top-down pressure combined with limited bottom-up support for action resulted in a broad policy mix that included few regulatory restrictions on local residents.

5.2 | Policy drivers and policy choice in Westminster

The legal context of EU regulations also acted as a key initial trigger for acting on air pollution in Westminster. As one officer explained:

> I suppose at a very basic level, the driver for all of our activities to begin with was a simple non-compliance with legislation… the EU directives. (interview 13)

In contrast to Nottingham, however, the EU air quality standards led to much greater awareness amongst citizens about the public health impact of pollution and increased bottom-up pressure for action. Interviewees attributed this public support and 'civic capacity' for action to the levels of education and affluence amongst residents (interview 13), which were far higher than in Nottingham (MHCLG, 2019). Indeed, a survey of Westminster residents conducted shortly after the Volkswagen scandal suggested that air pollution was their most important concern (WCC, 2017). Westminster was also the first local authority in the UK to develop an air quality action plan, and a range of council strategy documents discuss the health implications of air pollution and set out various initiatives that the city has adopted to combat the problem pro-actively (WCC, 2015, 2017, 2018, 2019). In contrast, Nottingham's air quality policy documents focus more on data collection, reporting and compliance with legal requirements (NCC, 2018, 2019, 2020).

Westminster's interviewees were keen to stress that public pressure, coupled with political leadership at the top of the council, was a crucial factor in triggering action:

> It's often our residents' top worry. And so that's something that drives the politicians… I remember our leader was saying, 'I've just sat in my office and looked out at the gloom and just thought, my God, we're trying to grow our city, a really kind of visionary, forward looking, green, pleasant environment to bring up a family, to live and work and play, but how can you do that if people are choking?' It was a real turning point for her, she suddenly realised this has got to be sorted out. (interview 13)

> Housing was top of the list about two or three years ago and now it's the environment. (interview 14)

This level of public support for action led to the council introducing regulatory instruments that were explicit about the need to improve air quality for its own sake, rather than solely to meet legal requirements (interview 14). In contrast to Nottingham, issues of legal compliance and the shadow of hierarchy did not influence the

council's policy mix, because it had sufficient civic capacity—a critical mass of educated, supportive and engaged citizens—to adopt ambitious and restrictive policies without worrying about the potential political backlash:

> Air pollution as a concern wouldn't go away here if we suddenly became compliant overnight, because it's kind of ingrained as this public health issue. (interview 13)

Indeed, even though the council relies more heavily on parking revenue than any other English municipality (RAC Foundation, 2019), in recent years it has introduced various restrictions on motorists. For example, diesel vehicles that park in the city now pay an additional surcharge of 50% of the normal fee, households with more than one vehicle pay extra for parking permits, and the council has created low emission zones around schools and introduced extensive 20 mph limits to encourage cycling and walking (WCC, 2019). Furthermore, Westminster shifted from opposing the introduction of the Mayor of London's congestion charge in 2002 to enthusiastically welcoming the capital's Ultra-Low Emission Zone (ULEZ) in 2018, which requires high-polluting vehicles to pay a daily £12.50 charge for driving in the area (cf. Guardian, 2002; WCC, 2015). This illustrates how the council moved towards embracing regulatory instruments as part of its environmental policy approach. As one interviewee pointed out, there was broad support across the capital and across the political spectrum for the Mayor's increasingly hierarchical approach to tackling air pollution, because it 'reflected the agreed needs in the city and it was suitably flexible to accommodate the local contexts in each part of the city' (interview 11). Notably, an official at Transport for London, the organisation responsible for most aspects of transport in the capital, was keen to stress that this united approach made it much easier for the Mayor to introduce the ULEZ and also to lobby central government to support local clean air strategies (interview 12). In contrast, our Nottingham interviewees felt powerless to influence central government's approach.

As with Nottingham, Westminster's more restrictive instruments are blended with other types of initiative—indeed, interviewees felt that it was essential to introduce a broad and complementary mixture of policies. In terms of administrative instruments, the council commissioned a study into the policies the city could adopt, drawing on examples from other municipalities around the world (Hesketh et al., 2017). In addition, the extra money raised by the parking surcharge on diesel vehicles funds a programme through which the city's schools undergo environmental audits to identify ways to improve energy use and air quality locally (interview 14). With over 400 electric vehicle charging points installed by autumn 2019, Westminster had more than any of the other 32 London boroughs and the municipality runs a high-profile 'Don't Be Idle' campaign to encourage motorists to turn off their engines whilst waiting to collect children from the city's schools. Even though the council is only in a position to levy fines of £20 for persistent offenders, interviewees argued that in most cases a polite warning is enough to comply (interview 14), and over 40,000 residents signed a voluntary pledge to stop 'idling'. Crucially, many of these initiatives received explicit support and funding from the Mayor, Transport for London and central government. These included the extension of vehicle charging infrastructure and the introduction of a pilot low emissions neighbourhood (LEN) in Marylebone, some aspects of which were subsequently rolled out across the city:

> A lot of the project work is grant funded, we try and maximise that. So the LEN obviously was Mayor of London funded, we've got projects at the moment that are funded by DEFRA and by the Mayor of London and TfL. (interview 13)

Such examples highlight the range of initiatives that Westminster has adopted to try and tackle the problem, and how higher tiers of governance are involved in shaping instrument selection. In other words, although there was significant local support for action on air pollution within the city, central drivers still played a key role in shaping the *breadth* of initiatives that the municipality included in its policy mix.

6 | DISCUSSION

Clearly, the drivers for tackling air pollution were very different in the two cities. Westminster relied on a high level of public support and civic capacity to underpin an ambitious and explicitly more restrictive policy mix. In contrast, and despite its high-profile stance on a number of green issues, Nottingham was very keen to avoid introducing a more regulatory approach because of concerns that it would not be popular with residents. For example, it framed the parking levy as a redistributive policy rather than an environmental or public health initiative, and this policy also had a greater impact on commuters outside the city boundary than its own citizens. Instead of regulation, Nottingham preferred to rely on informational instruments (such as awareness-raising events and anti-idling campaigns), (re)distributive policies like extending the electric vehicle charging infrastructure and retrofitting diesel buses, as well as increasing organisational capacity to manage these projects. As anticipated in our framework, therefore, the lack of bottom-up support influenced the *type* of policies that the city adopted. At the same time, top-down drivers influenced the *breadth* of instruments within Nottingham's policy mix, because the city was very concerned about legal compliance and managed to access central government funding streams for (re)distributive, informational and administrative initiatives. This led to Nottingham adopting an ambitious range of policies to reduce levels of NO_x to below the legal threshold, whilst nonetheless trying to avoid resorting to more regulatory restrictions.

Notably, such top-down pressures were far less important in Westminster, where public pressure meant the council was keen to act regardless of the legal situation. Although the EU's air quality standards acted as an initial trigger for action within the municipality, and certainly raised awareness of the scale of the problem amongst

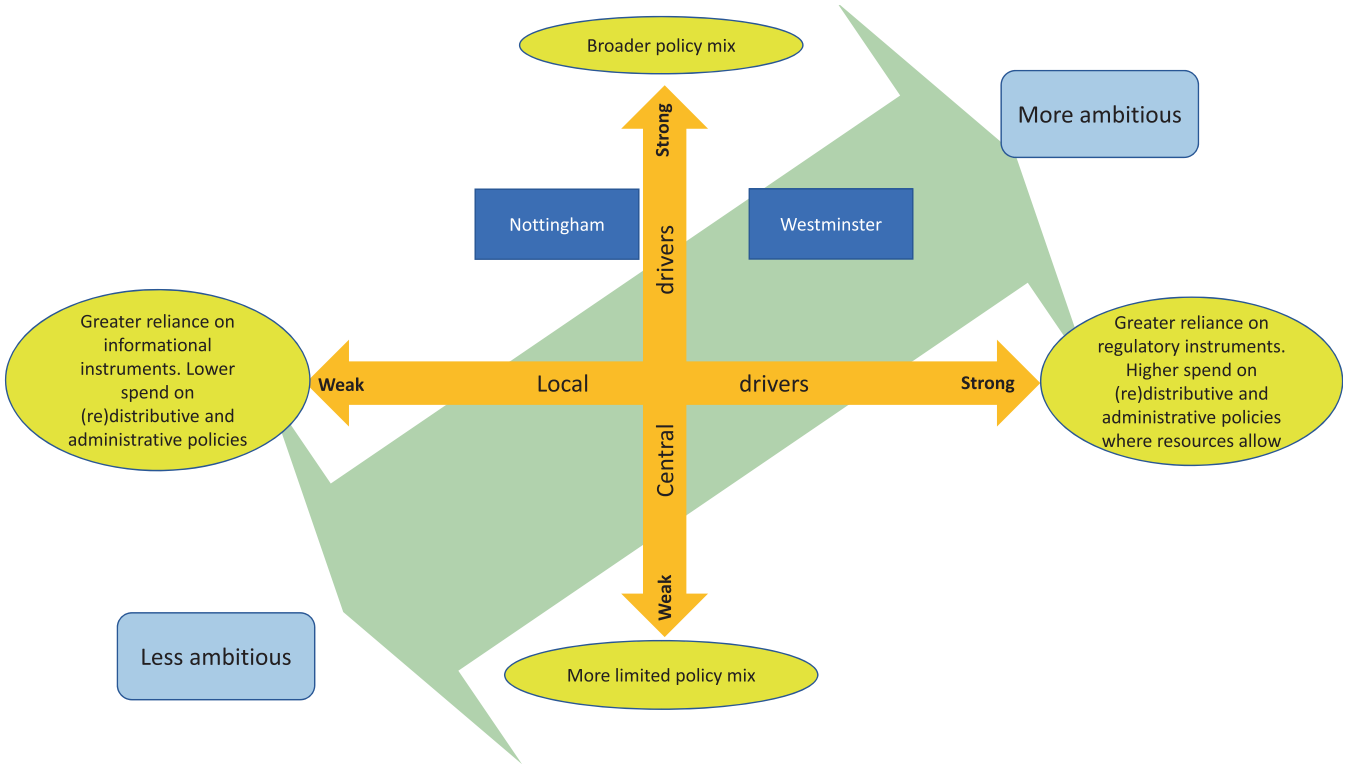

FIGURE 2 Central and local drivers for policy instrument selection in Nottingham and Westminster [Color figure can be viewed at wileyonlinelibrary.com]

residents, the city's subsequent policy choices were largely driven by local public pressure. This led the council to introduce various regulatory initiatives and wholeheartedly support the Mayor's ULEZ (which initially covered around half of the borough's territory but has since been expanded to encompass a much wider area).

As was the case in Nottingham, therefore, the choice of policy *type* was shaped by the degree of local support for action. Educated and concerned citizens pushed Westminster council to adopt regulatory instruments that placed more restrictions on residents, to the extent that top-down pressures played a minimal role in such decisions. However, central government and the London Mayor were influential in shaping the *breadth* of initiatives within Westminster policy mix, by providing funding and support to the municipality to introduce (re)distributive, informational and administrative instruments. Figure 2 illustrates how the air pollution policies of Westminster and Nottingham map onto our framework for understanding the drivers of instrument choice.

One notable absentee in the variables we examined was political ideology. Despite being Conservative-controlled, and therefore perhaps reluctant to embrace restrictive instruments, Westminster Council was actually much keener than Labour-controlled Nottingham to introduce regulatory policies. In line with our expectation that local public opinion was a key factor in shaping instrument selection, residents' concerns were much more important than political ideology in both cities. Indeed, various interviewees in Westminster and Nottingham stressed that political and administrative *stability* was a more important factor than ideology in adopting an ambitious policy mix. Councillors who were relatively confident of being re-elected were more likely to innovate and take risks, and officers who remained in post for a long time possessed extensive institutional and local knowledge that helped them implement a far-reaching policy programme. Where such conditions are in place, significant space exists at the urban level to develop distinct local strategies to tackle air pollution (Fujikura, 2011), even in a centralised country like England (Copus et al., 2017).

7 | CONCLUSIONS

Studies into policy mixes have tended to focus on the national level and the efficacy of different blends, rather than the factors that shape the instruments that municipal governments adopt. In examining two very different English cities, we found that comparable top-down factors resulted in them adopting a similar *breadth* of initiatives to combat air pollution, but contrasting levels of local support for action led to them preferring different *types* of instrument. Westminster has relatively well-educated and wealthy residents, who were willing (and able) to inform themselves about the public health impact of air pollution and had fewer other immediate concerns. This meant that there was significant bottom-up pressure for a pro-active approach to regulation on public health grounds. Although this important driver for change was absent in Nottingham, the need to ensure legal

compliance and the availability of funding streams led to the city adopting a broad range of (re)distributive, informational and administrative instruments to tackle the issue.

A mixture of different policies is necessary to address a whole host of public problems that overlap jurisdictional and sectoral boundaries, not just poor air quality. That said, 'complex policy designs' can potentially hinder the handling of environmental problems as they might be 'perceived as infeasible' (Glaus, 2021, p. 11). There is also a risk that broader policy mixes may not comprise a coherent and complementary blend of initiatives—particularly if governments develop them in a fairly ad hoc manner in response to available funding streams, rather than as part of a strategic assessment of the local context that considers the implications of other related policies. From an environmental protection perspective, therefore, policy mixes are more likely to be effective if they comprise both the appropriate breadth and the right type of instruments: relying too heavily on informational initiatives, or on a potentially incoherent mix of many different policies, is unlikely to result in substantial progress. Given that many other places lack Westminster's levels of civic capacity, local initiatives that try to increase public support for action, and thereby shift other municipalities towards the right-hand side of our framework, could help to create the conditions in which regulations are more readily accepted. This might be particularly important in the Global South, where pollution is often worse and local state actors may have less capacity to implement more stringent policies (Parnell & Robinson, 2012).

More research is required into the factors that drive policy instrument selection, particularly in sectors that require a more coordinated approach across tiers of government. We present our framework as a heuristic to organise and structure such studies. In particular, given that the framework emphasises how changes in the nature of central-local relations, and/or the local political context, should result in subnational governments adopting different policy mixes, it would be interesting to apply it to cases in which some these variables are in flux. It would also be extremely valuable to examine the drivers of instrument selection in those cities that may sit within other quadrants of our framework. By comparing Nottingham and Westminster we were able to control for the vertical context by examining two cities within a unitary state, and highlight how local factors played a key role in influencing the *type* of instrument that each municipality preferred to adopt. Studies that adopt the vertical context as an independent variable, and compare similar municipalities within different federal states in the same country, or indeed internationally, would be equally valuable, perhaps particularly where top-down drivers for action are weaker than in the UK or EU. Such research would further our understanding of multilevel systems and therefore help to build more predictive theory around the top-down and bottom-up factors that contribute towards different subnational jurisdictions selecting a particular blend of policy instruments., By revealing the various ways in which they try to steer and influence other actors to achieve policy objectives, they would also help to paint a more comprehensive picture of how national governments interact with municipalities, and how city governments seek to govern.

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CONFLICT OF INTEREST

We hereby confirm that we have no conflicts of interest.

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