

Bugs and Bureaucracies

Institutions, Administrative Autonomy, and the
Governance of Antibiotic Resistance

Daniel Carelli



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*To my parents,
Karin & Peter.*

Abstract

This dissertation investigates how variations in civil service arrangements among European states impact concerted governance over antibiotic resistance. Through four standalone research papers, it demonstrates that different institutional setups and degrees of administrative autonomy result in different governance outcomes. Consequently, concerted governance is deeply rooted in the institutionalized structures of domestic politico-administrative arrangements. However, the findings also suggest that even modest administrative reforms have the potential to disrupt the prevailing order. Crucially, the dissertation reveals that granting extensive latitude for action to senior civil servants and experts, driven by epistemic and collaborative values, creates favorable conditions for cross-sectoral and sustained governance. This holds true at both domestic and international levels. The dissertation contributes to the longstanding debate on administrative autonomy and political control, offering new insights into how these crucial factors should be configured for effective governance of collective action issues.

Sammanfattning på svenska

En av vår tids största samhällsutmaningar stavas antibiotikaresistens. Den här avhandlingen undersöker hur staters grundläggande institutionella ramverk i den offentliga förvaltningen påverkar utsikterna för effektiv styrning av denna utmaning. Det övergripande fyndet gör gällande att förvaltningar spelar en viktig roll i detta arbete. Dess grundläggande institutionella arrangemang påverkar i vad mån den inhemska styrningen av antibiotikakonsumption är effektiv, och dess administrativa kvaliteter påverkar hur och med vilka andra Europeiska stater som respektive land ingår i administrativa samarbeten med. Den främsta faktorn som denna avhandling kunnat utröna rör emellertid förvaltningsenheternas och dess tjänstepersoners grad och form av handlingsfrihet. Fäster man blicken bortom det specifika fallet om antibiotikaresistensens styrning i Europa blir en mer generell läsning av detta att komplexa, långsamt växande, men icke desto mindre storskaliga samarbetsproblem, såsom klimatförändringarna, erfordrar en hög grad av handlingsfrihet hos den offentliga förvaltningen.

Varför? Främst handlar det om ett klassiskt dilemma hos storskaliga samarbetsproblem, där koordinering av länder och miljontals människor krävs för att minska eller helt avstå från bruket av en ändlös resurs men som de flesta har goda skäl att forstätta använda. En sådan koordination kräver långsiktighet, innovativa problemlösningar och harmoniserade administrativa system. Eftersom den politiska nivån i demokratier rent rationellt prioriterar problem 'här och nu' och helt enkelt saknar tillräcklig kompetens för att upprätthålla god antibiotikastyrning, så faller en anse- nlig del av styrningen på förvaltningssystemet. Avhandlingen tar alltså avstamp från observationen av en uppenbar dysfunktionalitet i representativa demokratier, nämligen att komplexa, gränsöverskridande och långsamt växande problem inte ges tillräcklig uppmärksamhet i den politiska sfären, men vilket därigenom armerar förvaltningen med större befogenheter och handlingsutrymme.

Detta skapar både för- och nackdelar för antibiotikastyrningen. Eftersom förvaltningen är 'demokratins tjänare' är dess ärenden och resurser nära bundna till folket och dess politiska företrädares prioriteringar. I länder där politisk kontroll över förvaltningen är signifikant, såsom i många syd- och östeuropeiska länder, utspelas alltså ett imperfekt jämviktsläge där politiken är relativt obrydd om problemet men alltjämt noga med att

hålla förvaltningen i koppel. Som en jämförelse har den skandinaviska och västeuropeiska modellen snarare tillskjutit extra handlingsutrymme till experterna eftersom politikerna inser att det ligger bortom deras kompetens. Detta väcker emellertid den stora frågan om demokratiskt ansvarsutkrävande kontra expertstyre.

Det normativa svaret på ett sådant evigt dilemma som den *här* avhandlingen kan utröna utifrån den empiriska undersökningen av Europas antibiotikastyrning är att stater bör stärka förvaltningens handlingsfrihet vis-à-vis politiken. Denna handlingsfrihet bör dock inte sträcka sig hejdlöst; för att upprätthålla möjligheten till folkstyre av våra gemensamma resurser är det viktigt att förvaltningar inte själva sätter sina mål, utan endast i ett mer begränsat format ges handlingsutrymme att bestämma hur mål ska uppnås i praktiken. Baserat på fynden i denna avhandling så drivs förvaltningar av framförallt två viktiga normer och arbetssätt vilka skapar goda förutsättningar för antibiotikastyrning: kunskapsbaserad specialisering och samarbetsförmåga.

Sedan avhandlingsarbetets start har det så kallade 'One Health-ramverket' etablerat sig i Europeisk antibiotikastyrning, vilket innebär att länder kan inte längre bortse från att antibiotikaresistensen är ett delat problem mellan folkhälsa, livsmedelsproduktion, och den naturliga miljön. Denna utveckling rimmar väl med förvaltningens arbetssätt som denna undersökning kunnat påvisa – att specialiserade enheter kan samarbeta både tvärsektorielt men också mellan politiska nivåer och länder. Det bör dock understrykas att den nya styrning som växer fram på detta område kräver kritiska maktperspektiv. Om koordineringen förefaller alltmer vanlig som styrform, i synnerhet på informella och någotsånär icke-transparenta vis, så väcks frågan om vem eller vilka som dominerar den koordineringen. Denna avhandling skapar förutsättningarna för att fortsätta undersöka dessa viktiga frågor.

Att studera styrningen av antibiotikaresistens är utmanande då spelplanen är mycket föränderlig. De kollektiva ansträngningarna för effektiv styrning ökar i takt med att problemet blir alltmer påtagligt. Baserat på avhandlingens forskning så sätter det politisk-administrativa systemet i Europas länder grundtonen för det gemensamma arbetet mot problemet, vilket banar väg för vidare forskningssynergier mellan samhällsvetenskapen och naturvetenskapen i den mer allmänna frågan om hur mänsklig och planetär välfärd kan maximeras, nu och för framtidens folk.

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Writing a dissertation amidst a pandemic, especially on a subject veering toward bacteriology, has led me to view my journey through a lens of related metaphors. The obvious metaphor is, of course, that I am the parasite who benefits by deriving nutrients from my host, my advisor Jon Pierre; or to see my research output as a mere microorganism in the vast expanse of organisms; but I prefer a more uplifting metaphor: contagion.

Throughout my PhD, I've encountered numerous people and environments that have infected me with invaluable ideas and perspectives. Among these, the Department of Political Science at the University of Gothenburg stands out as a hotspot of contagious inspiration. Despite the challenges of social distancing, the vectors – my colleagues – have effectively transmitted their ideas, fostering an environment where sharing intellectual wealth is not just encouraged but institutionalized.

In this metaphorical reasoning, I introduce the concept of Department-Acquired Infection (DAI), akin to Hospital-Acquired Infection (HAI). Just as HAIs arise from exposure within a healthcare setting, DAIs occur when individuals within the department are enriched and transformed by the collective intellectual milieu. So, to all those who have contributed to my “infection” with knowledge and insight, I extend my heartfelt gratitude. Phrased slightly differently, thank you for making me feel so wonderfully “sick” with learning and growth.

*

How does one briefly summarize a relationship that encompasses friendship, collaboration, and mentorship? I sincerely don't know where to begin. Should I highlight our enjoyable and frequent gatherings at Nöller, where ideas flowed freely? Or perhaps emphasize the extensive email exchanges, filled with inspiring discussions on research questions and theories? Then again, there's the unconditional emotional support, a steady anchor through the turbulent seas of academic life. How does one distill such a relationship into mere words?

Jon, I am eternally grateful for the journey we've shared. Despite a rocky start – I skipped Jon's classes during the Master's program to prioritize watching Ennio Morricone perform in Stockholm (Jon keeps referring to this as “you were headbanging in Stockholm”) – you have consistently been

my academic guiding light. Thank you for allowing me to grow under your mentorship. You've generously imparted knowledge in its broadest sense, opened doors, shared countless cups of coffee, and sent music my way. I consider myself the luckiest of pupils to have had you as my guide.

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*

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*

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*

Being a passionate admirer of the Italian city Florence, a few years ago, I found myself seriously contemplating whether I had developed a form of Stendhal's syndrome. Symptoms such as rapid heartbeats and an emotional firework, akin to the final thirty seconds of Maurice Ravel's masterpiece *Bolero*, began to manifest – not due to being exposed to artworks of great beauty, but because I had met Hilma.

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1 Introduction

This dissertation examines the administrative hurdles entailed in the battle against antibiotic resistance (AMR).¹ These challenges are manifold, spanning from the maintenance of fundamental monitoring systems for antibiotic usage to the active participation in global epistemic communities. However, their solutions are imperative. Neglecting these administrative issues could result in dire consequences, impacting not only mortality rates and the economy but also exacerbating global inequalities.

In Europe we can witness a large flora of governance responses that seek to manage antibiotic resistance. This also presents in itself a governance challenge since the quality of governance in one context influences the prevalence of AMR in other contexts as bacteria proliferate regardless of humanly devised jurisdictional borders. In other words, the lack of quality of governance over AMR in a high consumption-country like Romania presents a fundamental political dilemma for the low consumption-country Sweden, thereby raising a rudimentary question for the student of politics: how can

¹'Antibiotic resistance' and 'antimicrobial resistance' are used interchangeably in this dissertation. The former specifically refers to bacterial resistance to antibiotics, while the latter encompasses a broader spectrum, including resistance exhibited by other microbes such as viruses, parasites, and fungi against drugs intended to combat them.

sovereign states whose essential public good is obstructed by the lack of adequate action in other states influence and steer the general alignment and strategies in other sovereign states?

Through four independent studies, I develop and present a comprehensive analysis of the institutional dynamics influencing AMR governance at both the domestic and transnational levels. In essence, the configuration and efficacy of public administration play a pivotal role, impacting public awareness and shaping collaborative efforts in transnational administrative coordination. Notably, the degree of administrative autonomy – the administration’s capability to translate its own preferences into authoritative actions without external constraints (Maggetti, 2007) – emerges as a critical determinant of successful governance outcomes.

The primary focus of this work is to thus unveil the battleground where this issue of international collective action unfolds. The exploration leads you through the European AMR governance space, introducing the key actors and shedding light on how their conduct aligns with institutional frameworks. These actors, primarily comprising medical experts and senior civil servants, represent a rather arcane group in political science. Yet, the subject matter at hand presents a fascinating mixture of professionalism and leadership among this group of actors within a multi-level governance landscape.

Notwithstanding these inevitable agency-driven dynamics, this dissertation’s principal objective is to provide an institutional account of European AMR governance. The remainder of this dissertation is therefore guided by the central research question: *How do administrative arrangements impact the governance of AMR in Europe?*

The more general question to which I hope to contribute is thus how the operation of the public administration can shape struggles to govern complex, large-scale, and transnational issues. By so doing, the present dissertation offers a contemporary illustration of enduring dichotomies such as expert-driven governance versus popular participation, as well as the delicate balance between political oversight and administrative autonomy to enhance the delivery of public services. Even more broadly, it contributes to our collective endeavors to comprehend the origins, configurations, and repercussions of public governance in an increasingly interconnected, densely populated, and technologically advanced world.

1.1 Argument

Based on the dissertation's findings, my central argument is that the institutional arrangement for politico-administrative relationships shape the capacity of the administrative organization to effectively address antibiotic resistance. The combination of low issue salience, high complexity, and administrative autonomy incentivizes the public administration to assume a leading role in governance. However, the effectiveness of their actions is contingent upon the fundamental configuration of political control and administrative autonomy, constrained by the pragmatic challenges of policy prioritization and frequently inadequate resource allocation within the political landscape. Furthermore, the configuration of the administrative governance over AMR shapes opportunities for citizens to maintain crucial factual awareness, a key factor in curbing widespread antibiotic consumption. Thus, while one of the greatest challenges with AMR refers to the behavioral challenge of antibiotic consumption, existing evidence has yet to conclusively establish the impact of administrative governance on knowledge levels. This dissertation presents perceptions-based evidence that help us better grasping this association and puts forth a theoretical rationale for the underlying causal mechanism.²

Existing research has tended to overlook the politico-administrative dimensions inherent in policy issues that lack high levels of salience. The management of these rather 'dull' policy issues is a recurring feature in contemporary politics, often remaining in the shadows of media exposure and consequently being framed more as administrative concerns rather than political ones. This raises critical questions about the unique challenges and

²The term 'causal mechanism' finds varied definitions across the social sciences, as noted by James Mahoney (2001). In a general sense, it refers to the 'link' connecting two variables or the conceptualization of *how* a causal effect unfolds. In my interpretation, I draw from Tulia Falletti and Julia Lynch (2009), who conceptualize mechanisms as portable variables upholding the connection between inputs and output variables, yet manifested differently depending on context. This perspective is consistent with the broader framework of historical institutionalism, where the pivotal variable of interest is, indeed, context (Capoccia & Ziblatt, 2010; Lieberman, 2001).

governance solutions that emerge in such contexts. Furthermore, what characterizes the state-and-society relationship in the administrative aftermath of these less-prominent political issues?

According to this dissertation, this scenario gives rise to the initiation and perpetuation of collaborative, transnational administrative governance led by senior public servants and experts. Their activities seem to exert influence over patterns of mass behavior. Therefore, when issues, for various reasons, do not ascend to the top priorities for citizens, the media, and politicians, it creates significant 'administrative action spaces,' i.e., a substantive space for civil servants to create governance. The configuration and effectiveness of these spaces can, in turn, shape public behavior.

Notably, administrators at the national level in Europe exhibit intriguing signs of collaborative transnational problem-solving. They employ informal networking activities to navigate the governance vacuum created by the constraints of representative democracy and the sovereign state. The aim of such networked forms of AMR governance is, as a leading expert in France expressed it, "to support the hierarchies" (Pierre et al., 2023, p. 19). It can facilitate the harmonization of authoritative action and thereby ensure the sustained efficacy of antibiotics, ultimately fostering governance of collective action. However, it is essential to acknowledge that informal governance structures come with inherent challenges such as natural hierarchies and centrality, which have the potential to result in suboptimal outcomes in collective governance efforts. Therefore, while existing research highlights the growing trend of countries coordinating efforts in the collective struggle against AMR, it has not provided compelling evidence regarding the emergence of specific dyadic or multilateral relationships and the resulting patterns of authority within these informal and transnational management structures. My findings suggest that network ties are established based on administrative homophily – indicating that countries tend to collaborate with those sharing similar qualities in their administrative systems. This, in turn, gives rise to intriguing power dynamics within the administrative level of transnational AMR governance.

Granting the public administration with a substantial amount of autonomy can be a fruitful strategy to overcome several inherent shortcomings coupled with large-scale collective action dilemmas. Administrative autonomy can enable the formulation of evidence-based and rule-bound policies,

facilitating international collaboration and enhancing the capacity to tackle contemporary challenges like pandemics and biodiversity loss. While political control remains essential for ensuring democratic governance, it should be wielded wisely and flexibly, especially when directing administrative activities rather than dictating the objectives of the administrative organization.

I have already outlined a range of issues and arguments that form the essence of this dissertation. To recapitulate briefly, the central theme revolves around fostering collective action at the international level, where diverse and institutionalized civil services play a pivotal role in shaping the prerequisites for administrative governance. In essence, the key takeaway underscores the significance of the politico-administrative relational configuration within the sovereign state — how administrators and decision-makers interact with each other, and most importantly, the autonomy granted to the administrative level of government to catalyze, lead, and execute necessary tasks related to the governance complexities of antibiotic resistance.

To provide further clarity to the dissertation’s contribution, Table 1 offers a graphical representation of the research questions, objectives, hypotheses, designs, and contributions pertaining to the dissertation as a whole, as well as to the individual papers.

1.2 A story of bugs and bureaucracies

On September 19, 1991, two German mountaineers discovered a 5,300-year-old, mummified human body in the Austrian-Italian ‘Ötztal’ Alps, hence nicknamed ‘Ötzi’, or simply the Tyrolean Iceman. The well-preserved body offered an unprecedented time-capsule into ancient European microbiota, as biological samples from the stomach and colon contents could discern crucial insights on the anatomical and pathogenic compositions of these early Europeans (Cano et al., 2000; Lazaridis et al., 2014). In 2016, a group of researchers managed to reconstruct the genome of the pathogen *Helicobacter pylori* in Ötzi’s stomach with new screening technologies (Maixner et al., 2016). Their final report, published in *Science*, revealed how Ötzi’s variant of *H. pylori* had previously only been discovered in India and Northern Africa, suggesting that the early European farmers had intimate connection to Asia, thereby questioning conventional knowledge that the European *H. pylori* is natural to the European environment (cf. Falush et al. 2003).

| | |
|----------------|---|
| Kappa | Bugs and Bureaucracies: Institutions, Administrative Autonomy, and the Governance of Antibiotic Resistance |
| RQ | How do administrative arrangements impact the governance of AMR in Europe? |
| Aim | To explain the role of the civil service in governing complex issues |
| Argument | Deliberate and delegated administrative autonomy can improve public service delivery |
| Design | Four research projects, different methods, and data |
| Contribution | Complex, creeping, large-scale collective action issues warrant substantial administrative autonomy |
| Paper 1 | The Four Worlds of Politics and Administration in the EU: How Institutional Arrangements Shape the Struggle Against Antimicrobial Resistance |
| RQ | How do basic administrative arrangements in the public sector affect the prevalence of antibiotic resistance? |
| Aim | To understand how the administrative state may shape the struggle against AMR |
| Hypothesis | Institutionalized politico-administrative relationships influence AMR governance |
| Design | Panel regression, interviews, prevalence data |
| Contribution | Constraining administrative autonomy can create suboptimal outcomes |
| Paper 2 | When the Cat is Away: How Institutional Autonomy, Low Salience, and Issue Complexity Shape Administrative Action |
| RQ | How can institutional autonomy, issue salience and complexity shape administrative action? |
| Aim | To explore and conceptualize administrative problem-solving of complex issues |
| Hypothesis | Civil servants exploit the political vacuum to realize governance in accordance with its epistemic and professional values |
| Design | Conceptual analysis, interviews |
| Contribution | A conceptualization of 'administrative action spaces' which emerge and influence administrative governance in instances where political democratic governance fails |
| Paper 3 | Ignorance is Bliss? Enhancing Public Awareness of Antimicrobial Resistance through Collaborative Administrative Governance |
| RQ | How does administrative governance affect issue awareness? |
| Aim | To understand how individuals can sustain high levels of awareness over non-salient and complex issues |
| Hypothesis | Collaborative public management increases issue exposure to citizens, thus enabling more awareness |
| Design | Multilevel analysis, AMR expert survey data, Eurobarometer |
| Contribution | Antibiotic consumption and AMR are influenced by the public administration's operation |
| Paper 4 | Drivers of Transnational Administrative Coordination on Super-Wicked Policy Issues: The Role of Institutional Homophily |
| RQ | Who collaborates with whom in administrative coordination to solve super-wicked problems? |
| Aim | To understand patterns of informal networks aimed to coordinate the administrative struggle of AMR |
| Hypothesis | Institutional homophily fosters coordination |
| Design | Network analysis, interviews, AMR expert survey data |
| Contribution | Administrative coordination is more likely when entities share similar levels of administrative qualities |

Table 1: Dissertation overview

The finding sheds light on the fact that even limited migration and interpersonal contact can have enormous microbiological consequences. More accurately, the swift bacterial transferal confirms the Darwinian evolutionary theory of natural selection and underscores that an ever-integrated world can accelerate the process (Salmond & Welch, 2008). This has immense implications for the growing issue of AMR, i.e., that bacteria (or ‘bugs’) are developing resistance towards our current supply of antibiotics. While antibiotic resistant bacteria have been discovered in 30,000-years-old natural environment and therefore can be considered ancient (D’Costa et al., 2011), humans are now playing chess with the evolution since its activity of mis- and overusing antibiotics rushes the development to an exponential rate.

Excessive human consumption of antibiotics, ranging from the individual to the global level and intersecting activities in human medicine and growth-promoting medicine for animals in livestock production, suggests that mass behavior is at the core of this issue (cf. Davey 2015, p. 2931). As such, the creation and maintenance of authority and governance to steer behavior into sustainable action is essential to prevent immeasurable numbers of deaths in the coming decades, or what has been called ‘the silent pandemic’ (Geli & Cars, 2021), a ‘pharmageddon’ (Salmond & Welch, 2008), and a ‘post-antibiotic apocalypse’ (Nerlich & James, 2009). However, despite being an obvious issue for public governance, political attention is rather scant and inconsistent over time (Engström, 2021; Zaman, 2022), which, as will be further explained shortly, is concomitant to its technical and social complexities (cf. Littman et al. 2020; Haring & Krockow 2021).

However, the domain of AMR governance in Europe is characterized by a diverse array of actors who are dedicated to forging and maintaining collective efforts (Carelli & Pierre, 2022; Pierre et al., 2024). These individuals typically occupy senior positions within the public service, possess expertise in epidemiology and pharmacology, or actively engage as veterinarians or general practitioners in their respective local jurisdictions. Beyond their epistemic qualifications, they also exhibit intriguing dynamics of complex problem-solving, transnational coordination, and the sustained, harmonized, and widespread commitment across highly specialized organizations.

This dissertation seeks to comprehend this somewhat arcane group – and in particular the institutional configurations under which they are nested – through the theoretical lenses of public governance and international collec-

tive action. In a manner akin to Max Weber's observation (1978, p. 220) that "the exercise of authority consists precisely in public administration," this dissertation endeavors to explore the interplay between the challenges posed by antimicrobial resistance and the bureaucratic systems designed to address them.

The administration's ability to effectively manage AMR is tied to its relationship with the political sphere. While the prevalence of antibiotic-resistant bacteria is escalating in societies, the relatively quiet political intervention raises questions about the influence of politics and governance in mitigating this phenomenon. In other words, a highly relevant question is why politics often fall short in adequately addressing the issue, even in the face of compelling evidence regarding the dire consequences if left unattended? And what implications does that hold for the public administration?

Public administrations around Europe have all the mutual and fundamental task to implement public policy (Gormley & Balla, 2013) and to serve as an advisory body to policy-makers (e.g., Peters & Barker 1993). However, the diverse configurations and roles of different units and actors, which are subject to change over time (Peters, 2021), call for a pluralist approach in the study of administrative politics (Baig et al., 2021; Dahlström & Lapuente, 2022). Furthermore, the quality of administration exerts a significant impact on good governance more broadly (cf. Rothstein 2011; Pierre & Peters 2000). In other words, a wealth of empirical research spanning several decades substantiates the assertion that effectively administered polities correlate with improved public service delivery (cf. Bågenholm et al. 2021). The current research frontier now seeks to unravel the underlying mechanisms that uphold this association, while considering the nuanced variation of polities across time and space.

Therefore, additional exploration is essential to validate the specific mechanisms driving the relationship between administrative configuration, governance quality, and outcomes associated with antibiotic resistance. What factor may serve as the glue connecting the overall quality of governance to favorable outcomes in AMR? The central premise of this dissertation asserts that the influence of administrative levels on governance is mediated through the degrees and types of autonomy exercised by public organizations and their stakeholders, which manifest in diverse ways. Through four

research papers, I clarify how this mechanism becomes evident in transnational administrative networks, in path-dependent administrative behavior, in administrative innovation, and in balancing the technical management of the issue with sustaining heightened public awareness.

In summary, this dissertation examines the emergence of AMR governance beyond national boundaries, casting extra attention to the collaborative, epistemic, and problem-solving capacities of the civil services and their stakeholders who are often only seen behind the curtains in policy-making. More generally, it generates novel knowledge in the new field in the social sciences, with the goal to extrapolate in more detail how human organizations and the circumstances in which they are nested are indeed complex and can foster certain incentives structures, often to continue an inert and non-desirable behavior, but also how they can come together to establish and operate governance of the collective action.

2 Bugs

Addressing problems with potentially immense costs to the society is undeniably a central responsibility of governments. Nevertheless, we still encounter situations in advanced democracies where a conspicuous dysfunction prevails, where political actors hesitate to effectively tackle the looming threat of a 'post-antibiotic apocalypse.' Why does this persist? To unravel this puzzle, this section outlines the fundamental nature of the problem and its ramifications for political action, specifically delving into its impact on the functioning of public administration.

2.1 The policy problem

A consensus among scholars and practitioners holds that certain bacteria have come to signify one of the greatest threats to human health (for an overview see Mulani et al. 2019; see also De Oliveira et al. 2020; Mancuso et al. 2021). These bacteria are typically highly adaptive in the natural and hospital environments and capable of acquiring and transmitting genes between vectors (i.e., individuals and animals) (e.g., Martínez and Baquero 2014; Andam et al. 2011; Gimza and Cassat 2021; Ramos et al. 2020; Peleg et al. 2008). They are significantly pathogenic and can cause severe infections such as urinary tract infections, pneumonia, and bloodstream infections (e.g., Shariati et al. 2020; Di Franco 2021). Furthermore, they are exceptionally capable of developing resistance towards various antibiotics (Gimza & Cassat, 2021). In consequence, a host of antibiotics are already today ineffective in many countries (Vazquez-Lopez et al., 2020), including several drugs of 'last-resort' (e.g., Effah et al. 2020; Davin-Regli et al. 2019; Tumbarello et al. 2015).³

³The WHO lists the so-called ESKAPE bacteria to represent the most critical ones. ESKAPE stands for *Enterococcus faecium*, *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Acinetobacter baumannii*, *Pseudomonas aeruginosa*, and *Enterobacter species*. E.

faecium is a gram-positive coccus, part of a family of 50 different *Enterococci* species, but where only two are pathogenic in humans, *E. faecalis* and *E. faecium*. While the former is more pathogenic, the latter is significantly more resistant to antimicrobial agents, and can cause severe hospital-acquired infections, such as catheter-associated urinary tract infections (Shiadeh et al. 2019). Since the discovery of vancomycin in the 1970s, and the heavy use that followed to meet the increasing *enterococci* resistance to third-generation cephalosporins, it took only two decades before vancomycin-resistant *enterococci* became the second most common nosocomial pathogen. It is thus highly adaptive and can acquire genes through several mobile genetic elements (Ramos et al., 2020).

S. aureus is a gram-positive, common human pathogen which ranges from being characterized as mild to life-threatening. It is precarious for its high degree of contagion and ability to develop resistance towards various antibiotics (Gimza & Cassat, 2021). It took only two years for *S. aureus* to develop resistance towards the semi-synthetic penicillin – methicillin – which was discovered in 1959 (Lee et al., 2018). MRSA, the methicillin-resistant *S. aureus*, is according to the WHO a major threat given its great ability to spread and cause several serious infections (Shariati et al., 2020).

A. baumannii is an aerobic gram-negative bacillus with at least 31 species, commonly called *Acinetobacter spp.* Four of these species are closely related and comprise the *A. baumannii* group, and the most severe ones for clinical infections for humans. They often cause outbreaks at intensive care units, partly because of their capacities to survive on dry surfaces and ability to create biofilm (Peleg et al., 2008). These bacteria have natural resistance towards several common antibiotics such as penicillin and cephalosporins, and carbapenems are commonly used to treat a sensitive strain, but which are already ineffective in some countries because of a dramatic development of AMR (Vazquez-Lopez et al., 2020). The most important mechanism for the development of resistance towards carbapenems are ‘extended spectrum betalactamases’ (ESBL), where these resistant mechanisms are situated on mobile genetical elements such as plasmids or transposons who often carry resistant genes for other classes of antibiotics. These mobile segments can easily proliferate across strains, which suggests an effective spread of multi-resistance (Peleg et al., 2008).

K. pneumoniae is a gram-negative bacillus, causing several common nosocomial infections, such as urinary tract infections, pneumonia and bloodstream infections. It is becoming increasingly resistant to antibiotics by the acquisition of the enzymes ESBL and carbapenemases (Effah et al., 2020). This is particularly problematic for societies with high levels of multi-resistant bacteria, since carbapenems are often the drugs of last-resort against gram-negative persistent infections. In other words, increasing the use of carbapenems against infectious diseases drives the development of *K. pneumoniae*-resistant strains, hence posing a major threat to public health (Tumbarello et al., 2015).

P. aeruginosa is an opportunistic bacterium with great adaptability in different environments under antimicrobial presence. It is one of the most common gram-negative

The abundance of resistant genes is boosted by several factors, such as increased closeness and overcrowded environments (Allcock et al., 2017), but most significantly by the mis- and overuse of antibiotics in clinical medicine, outpatient care, and in livestock production. As argued in a well-cited paper (Laxminarayn et al., 2013, p. 1059), “[a]ntibiotic use is a main driver of selection pressure that contributes to resistance, and because consumers do not understand this problem, the drugs are among the world’s most purchased. Most antibiotics are used unnecessarily, in commercially driven agriculture, and by physicians uncertain of a diagnosis or treating largely self-limiting bacterial or viral infection.”

Overcrowded sites for livestock production and their proximity to humans result in amplified risks of bacterial transmission (Landers et al., 2012; McEwen & Fedorska-Cray, 2002). Still, antibiotic use for growth-promotion is still the norm in most countries as the risk of having sick animals would endanger potential profit from the production (O’Neill, 2014), a conduct that is nowadays banned within the EU (EPHA, 2022). In addition, the environment works as an effective platform for the transmission of bacteria (Anwar et al., 2020; Cabello et al., 2016; Larsson, 2014; Larsson & Flach, 2021; Manaia, 2017; Taylor & Reeder, 2020). Therefore, zoonotic and environmental aspects of the must be integrated with antibiotic consumption to humans, making AMR a ‘quintessential One Health issue’ (Robinson et al.,

bacteria causing severe nosocomial blood stream infections (Recio et al., 2020). Similar to *A. Baumannii*, it has capacity to create biofilm and thereby making it a typical ‘environmental bacterium’ that can survive on surfaces at hospitals. Therefore, these germs can spread among individuals either by exposure to contaminated soil or water, or through contaminated hands or equipment, typically in clinical settings such as hospitals.

Enterobacter species are aerobic gram-negative bacilli composed in a family of 22 species in the genus of *Enterobacter*, where most of the human-acquired infections take place in hospitalized environments, on various surfaces, equipment, and personnel. The rather common outbreak of *Enterobacter*-related infections has boosted excessive usage of broad-spectrum antibiotics, which in turn has increased the spread of resistant strains (Davin-Regli et al., 2019). These bacteria are highly adaptive to the hospital environment and easily acquires several genetic mobile elements such as ESBL, and these multidrug resistant strains (MDR) are immune against almost all available antibiotic drugs, making it highly hazardous as a cause of nosocomial infections (Di Franco et al., 2021).

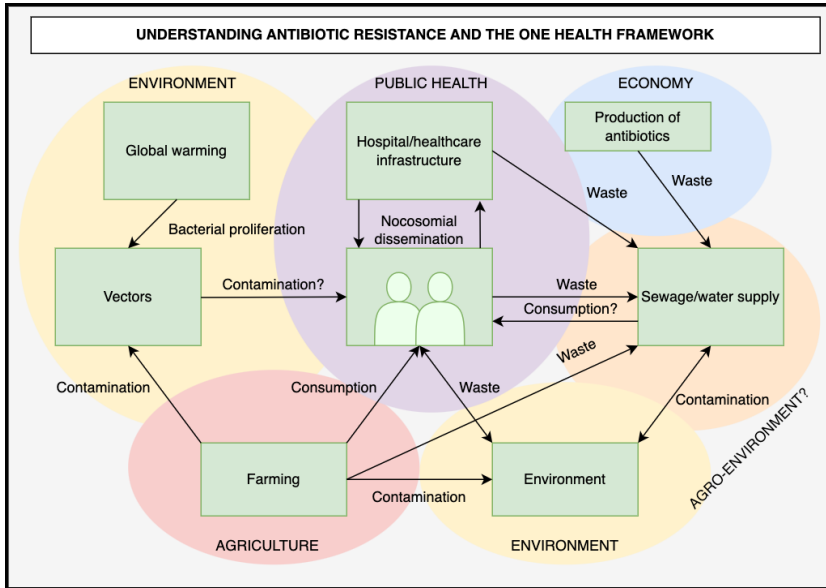


Figure 1: The development of AMR occurs is woven into a complex web of institutions. Governing the issue thus requires coordinated governance among the domains of public health, environmental quality, the economy and agriculture.

2016), which stress governance strategies to embrace cross-sectoral and multi-level solutions with a broad representation of stakeholders (Amuasi et al., 2020; Hernando-Amado et al., 2019; Lee & Brumme, 2013; Zinsstag et al., 2011).

The One Health characteristic presents a formidable challenge to the operational efficacy of the public administration. Illustrated in Figure 1, addressing various channels through which AMR spreads requires the concerted efforts of at least four highly specialized units within the civil service. The complexity extends beyond the mere consumption of antibiotics by humans or animals; it encompasses the environmental bacterial contamination stemming from antibiotic waste, pharmaceutical production, and the heightened risk of vectors carrying resistant bacteria due to global warming. This complex landscape necessitates not only coordinated governance

among specialized units within the public sector but also collaboration across politico-administrative levels, contingent on the state's vertical dispersion of power. In addition, emphasizing the transnational nature of several of these elements underscores the imperative for international coordination.

The excessive use of antibiotics expedites the evolutionary process of bacterial resistance (Malik & Bhattacharyya, 2019), which, as a result, leads to a depletion of effective antibiotics in healthcare services and livestock production, paving the way for the resurgence of numerous untreatable infectious diseases. It also introduces additional risk to clinical surgeries, as antibiotics are routinely employed for prophylaxis during most medical procedures. The annual costs, both in terms of direct and indirect mortality, currently stand at 1.3 and 5 million, respectively (Murray et al., 2022). Alarming predictions for the year 2050 estimate that AMR will directly cause the death of 10 million people annually (O'Neill, 2014).

2.2 Political response

Resolving the issue of antibiotic resistance would be straightforward if individuals refrained from using antibiotics when they are not absolutely necessary, either voluntarily or due to government intervention. Unfortunately, the former scenario is unlikely to manifest in the real world. Abandoning the use of antibiotics would be deemed irrational from the perspective of conventional human behavior, as the individual and collective utility outcomes do not align (cf. Jagers et al. 2020).

For instance, taking a broad-spectrum antibiotic may effectively treat an individual's infection, but this consumption contributes to the growing proliferation of antibiotic resistance, ultimately diminishing the availability of effective antibiotics for everyone. Consequently, a patient in the present moment is unlikely to prioritize the longer-term collective benefit of maintaining useful antibiotics over the immediate individual advantages of antibiotic use. Similarly, prescribers of antibiotics and pharmaceutical companies have limited incentives to align their behavior with the collective utility function, or they are simply required to prescribe full-spectrum antibiotics because of relatively dysfunctional laboratory procedures at emergency departments (Charani et al., 2014; Silver, 2011).

Assuming that this logic of action prevails across the entire spectrum of individuals and organizations in society, both globally and locally, takes

the detrimental consequences for collective well-being to another scale, not to mention the prospects of future generations. Consequently, if voluntary action is unlikely to occur, the remaining question is how governance can best arise to incite mass behavioral change.

Based on the preceding discussion, the challenge confronting decision-makers and the relevant public organizations becomes evident: it involves reducing antibiotic consumption, thereby addressing the spread of antibiotic-resistant bacteria, and mitigating its adverse impacts on the provision of public goods. These activities may entail strategic initiatives such as investing in research and development for the creation of new antibiotics. However, this is more easily recommended than implemented, as the persistent activities are bolstered by multiple behavioral aspects that prevent sufficient action from occurring. These refer to, among other things, bad ‘prescribing cultures’ among general practitioners (Charani et al., 2014; Gruneir & Lapane, 2008), high levels of public demands for antibiotic drugs (Castro-Sánchez et al., 2016), corruption in the health sector (Collignon et al., 2018; Rönnerstrand & Lapuente, 2017), over-the-counter retailing and black markets (cf. Belachew et al. 2021), and internet drug prescriptions (Mainous et al. 2009).

Furthermore, the issue is difficultly governed as much of the bacterial spread is occurring beyond the control of the sovereign state, and particularly threatening for future generations who, naturally, cannot participate in deliberation of today’s political prioritizations (MacAskill, 2022; MacKenzie, 2020). Also, the slowly escalating onset of AMR – often conceptualized as a ‘creeping crisis’ (cf. Boin et al. 2020; Engström 2021) – makes public attention less likely to occur if compared to more abrupt crises. In consequence, political attention and governance may only occur postum to the small and incremental changes that culminates into a larger change – or a ‘tipping point’ (Scheffer et al., 2009) – after which turning back is difficult or impossible to attain. Thus, the issue inherently obstructs political governance from happening, and the absence of governance fuels the development of AMR as a creeping crisis (cf. Van Den Ende et al. 2023).

In summary, AMR is a typical social dilemma that involves several behavioral problems (Harring & Krockow, 2021). And while politics is the natural instance for solving difficult issues with severe implications for human well-being, the complexity of AMR evidently prevents this from happen-

ing as a natural response (Littman et al., 2020). These circumstances have evoked some varying responses with different attainments across Europe, culminating into a formidable challenge for international collective action.

2.3 From prevalence to governance

The first comprehensive assessment of AMR variation in Europe in 1997 uncovered significant disparities in both the overall consumption of antibiotics in outpatient care and the specific types of antibiotic used (broad-spectrum versus narrow-spectrum) (Cars et al., 2001). Utilizing the standardized measure of defined daily dose (DDD) per 1000 inhabitants per day, the study reported values around 30 for France (36.5) and Spain (32.4), in contrast to values around 10 for the Netherlands (8.9) and Denmark (11.3). The utilization of broad-spectrum antibiotics ranged from 56% in Spain to 20% in Germany of the total sales, with beta-lactam antibiotics (penicillin and cephalosporins) being employed six times more frequently in France (23%) than in the Netherlands (3.6%). The authors postulated that these variations were not solely attributed to "differences in the frequency of bacterial infections" but also to factors such as "physicians' and patients' attitudes toward antibiotics, historical backgrounds, cultural and social factors, and disparities in health-care systems" (Cars et al., 2001, p. 1853).

The best available contemporary AMR surveillance data, summarized by the European Centre for Disease Prevention (ECDC), reaffirms the presence of a discernable north-to-south and east-to-west gradient in Europe (ECDC, 2022, p. 27). Figure 2 displays the prevalence of four of the most alarming bacteria within four clusters of countries in between 2013 and 2021. While these clusters exhibit internal variation, the disparities in outcomes within the same continent, despite all being EU Member States, indicate divergent governance approaches among states. The Figure only means to portray the significant variation in AMR across European states, and that the patterns appear stable over time. The data collected within the current research project supports the conjecture of varying levels of antibiotic consumption

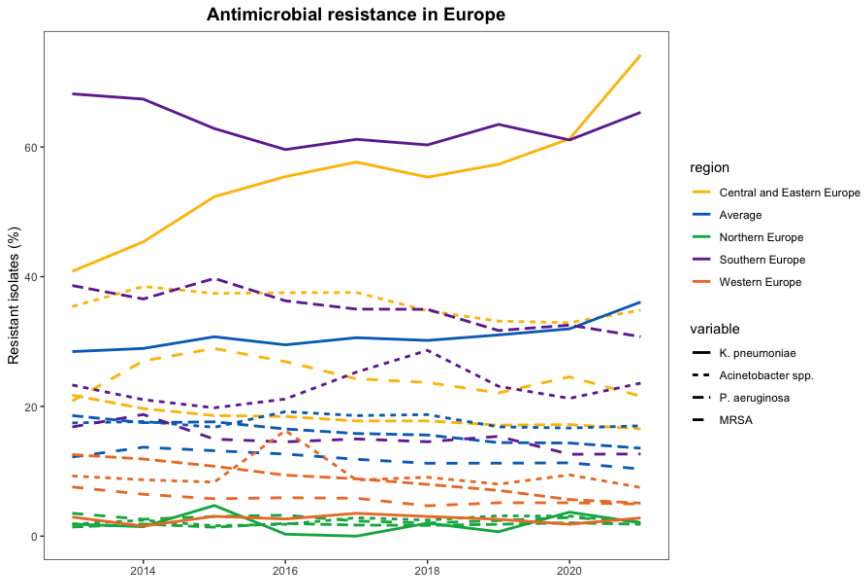


Figure 2: All data shows yearly surveillance scores, as Combined resistance (at least three of piperac. and tazob., fluoroq., ceftaz., aminogl. and carbapenems) for Resistant isolates in percentage. The regional categories consist of the following countries. Nordic = Denmark, Finland, Norway, Sweden; Western = Austria, Belgium, France, Germany, Ireland, Luxembourg, Netherlands, United Kingdom (until 2019); Southern = Cyprus, Greece, Italy, Malta, Portugal, Spain; Central = Bulgaria, Croatia, Czechia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia; Europe = average. Source: ECDC (2022).

as an outcome of institutional configurations.⁴ Countries showcase significant discrepancies in the implementation of specific policy instruments and their effectiveness in yielding positive outcomes. Consequently, bureaucracies grapple with varying levels of AMR and diverse challenges in AMR governance. The following section continues this exploration.

⁴This data collection is detailed in the Methods section below.

3 Bureaucracies

Enter the bureaucrats: the true leaders of the Republic. Star Wars, Episode 1. Cited in Peters and Pierre (2003, p. 1)

One of the main purposes of the state is to help individuals governing themselves but also to limit their liberties to preserve public goods that would be depleted without coercive intervention (Mansbridge, 2014). This basic, but extensive, purpose is complicated by the issue of polycentric governance, i.e., that governance issues often involve an interdependency of actors from a mixture of multiple and diverse institutional arrangements that influence their coordination (Ostrom, 2010). This is particularly problematic when the public good at hand – such as antibiotics – is being commonhold at a very large scale. Having masses of individuals from various legal jurisdictions, and that are temporally or spatially detached from one another makes spontaneous or voluntary collective action a rather improbable outcome (Jagers et al., 2020). How can sufficient authority emerge to govern this type of challenge, or put differently, how can governance emerge to allow individuals to govern themselves?

The efficacy of democratic governance hinges on the quality of the civil service and its involved actors. Yet, their precise roles in the political system and each actor’s underlying motivations are certainly ambiguous given the considerable size of the public sector, its changeability over time, and its various configurations across polities. Examples of tasks and functions include, but are not limited to, implementing enacted public policy, providing public services to the public, ensuring stability, routine and evidence-based

management of public affairs, interacting and co-producing with citizens and non-governmental organizations, and providing essential expertise to decision-makers to advance and legitimize the fruits of politics to the greatest extent possible. Holding key functions in such vast numbers of operative areas in public governance raises the everlasting questions of power and legitimacy. Is the bureaucratic organization too powerful, and do its powers align with the will of citizens?

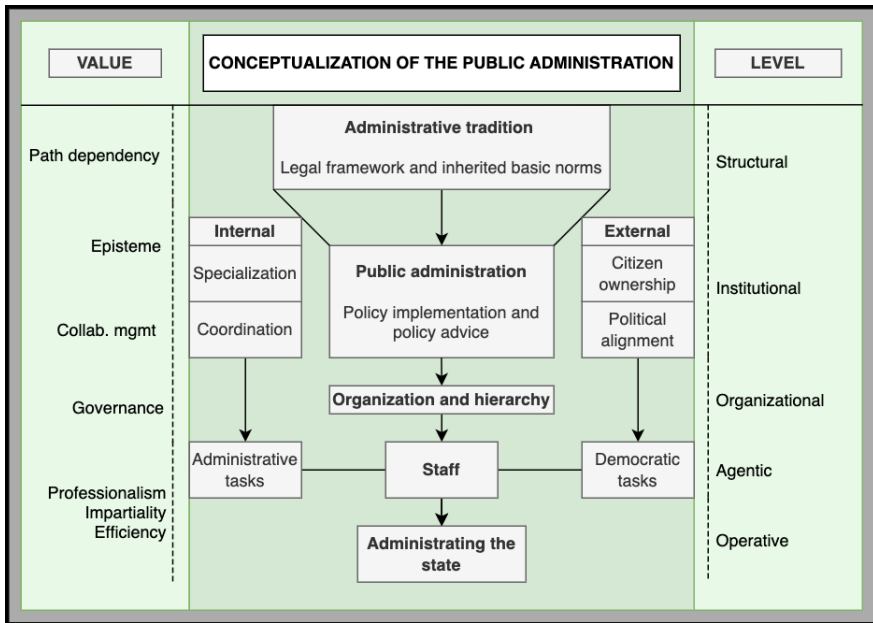


Figure 3: The public administration is a hierarchical organization, governed by different values and levels. In democracies, citizen hold ownership over the organization, which may work against the epistemic specialization and coordination of the administrative organization.

A more nuanced comprehension of these dynamics is enhanced through visualization. In Figure 3, I propose two overarching yet related elements that propel public administration. Most rudimentary, the public adminis-

tration is a multifaceted entity driven by structural rules inasmuch it serves as a modern workplace for a diverse array of public servants who regularly engage with citizens and decision-makers. The rationale for their actions varies depending on the level under observation. For instance, while enforcing public policies, civil servants adhere to the path-dependent structure of the law, as well as to intrinsic values like professionalism.

Moreover, the public administration is not just any organization. Instead, it is governed by two central missions, one internal and one external. The internal mission involves defining its purpose based on epistemic knowledge and coordination. In essence, regardless of the specific policy problem, government agencies must specialize in the relevant subject matter. Moreover, these specialized organizations need to be adept at collaborating with other specialized entities. On the opposite end of the spectrum, democratic governance dictates that citizens and constituents are the true proprietors of public administration. Consequently, the work of public administration is directly influenced – or constrained – by their collective will.

An inherent feature of the public administration, which relates directly to the administrative management over AMR, is that the administrative task and the democratic task do not consistently align. Administrators navigate a delicate balance, adhering to legal structures (Selznick, 1992), responding to citizens' wills and needs (Bertelli, 2021), demonstrating loyalty to the current government (Rosanvallon, 2011), conforming to socially appropriate behavior (March & Olsen, 1989), upholding professional norms (Perry & Wise, 1990), and embracing collaborative practices with private organizations (Ansell & Gash, 2008). Ultimately, the work of the public administration in democracies is shaped by, on the one hand, the norm of democracy, and on the other hand, norms of professionalism. This predicament may lead to suboptimal governance outcomes, as administrative capacities are tied to political oversight. In situations where oversight is substantial, but public and political awareness of the issue remains low, the potential for effective administrative governance becomes severely limited. By contrast, allowing the public administration to 'do its thing' may lead to serious democratic deficiencies. As discussed by *Finer (1941)* and *Friedrich (1940)* nearly a century ago, the question of the optimal institutional oversight from the perspective of citizens and their representatives over administrative action remains a subject of controversy (cf. *Overeem 2005*).

3.1 The many faces of administrative autonomy

According to a commonly applied definition, administrative autonomy refers to the ability to translate one's own preferences into authoritative actions without external constraints (Maggetti, 2007). While this captures a nexus of public power among civil servants vis-à-vis politicians or citizens, it leaves several elements undefined, such as what ability, preferences, actions, and constraints signify, let alone who the involved actors refer to. Also, it is less helpful in making sense of autonomy from a micro, meso and macro point of view, i.e., to the extent the civil service 'as a whole', its specialized organizations, and ultimately civil servants can be understood as autonomous.

Firstly, viewing the civil service as a total entity accentuates that norms, values and judicial boundaries are common across the full polity. The unity of individuals and organizations in this perspective can serve to augment its autonomy relative to politicians – an outcome often accused as a form of 'deep state' — but can inasmuch be the source of extensive control as law commands over the full entity. Secondly, the civil service is a sum of several organizations with distinct tasks and 'cultures' (Hofstede, 2001), which results in many different variants of autonomy at the organizational level (Carpenter, 2001).

Thirdly, individuals have different mandates and functions, which is why autonomy is also multidimensional at the individual level. This is a natural outcome of the inherent hierarchical structure of the public sector, but it is worth mentioning that autonomy will manifest itself differently when comparing a street-level and a senior civil servant. The former who interacts regularly with citizens can extrapolate essential knowledge of citizen behavior, information that can be used to influence their autonomous position vis-à-vis their political masters; and the latter who has less citizen interaction but is responsible for a good share of the organization's activity which he or she can 'monitor from above'. The point is that different administrative mandates and functions will foster different sources, forms, and consequences of autonomy.

3.2 Causes and consequences

The public sector can thus be understood as a highly regulated, publicly funded organization with a large area of operative responsibility, whose ac-

tivity is composed and implemented by a myriad of actors holding various ranks and functions. But what factors influence the general functioning of the public sector, and by extension, administrative autonomy? An institutionalist account would maintain that rules and human action are shaped and reproduced by path dependency by incentivizing compliance to desirable social and politico-administrative behavior (March & Olsen, 1989). The hierarchies of civil servants and their modes of working are therefore to some extent transmitted from the past (Schreyögg & Sydow, 2010).

While we see considerable differences in path dependent administrative practices and structures across states, we can also observe intriguing concordances, often among culturally or geographically proximate states such as the Scandinavian (Greve et al., 2020) or Southern European states (Di Mascio & Natalini, 2015; Ongaro, 2009). This observation, lending credence to the work of Guy Peters (e.g., 2021, 2008), enables performing informed comparisons of large administrative systems in Europe, such as comparing the Scandinavian, Anglo-Saxon, Napoleonic, and Eastern European administrative institutions, and how their differences and similarities can influence various outcomes (e.g., Steinebach 2023).

If the basic administrative arrangement affects the civil service's *modus operandi*, we can assume it to indirectly influence an almost infinite number of societal outcomes. This indirect effect is investigated in one research paper (Paper 1) of this dissertation, exemplifying how the arrangements in several major European administrative traditions impact the governing capacities to reduce the prevalence and proliferation of resistant bacteria. Most strikingly, the described politico-administrative relationships, i.e., the extent to which administrators are given latitude for action and whether and how they are expected to provide advice to policymakers corresponds greatly with antibiotic consumption and the varying degrees of AMR.

Gaining extensive administrative autonomy often infuse fears of 'shirking bureaucrats' but can just as much imply an excelled delivery of public services. Briefly put, that bureaucrats outperform their tasks. According to the former view, civil servants are expected to use their autonomy to pursue personal objectives or work against political objectives, or simply 'shirking instead of working' at every opportunity (e.g., Brehm and Gates 1997). Most importantly, this view emphasizes administrative opposition to democratic politics, i.e., that the will of the people is separated from the

civil service. As Huber and Shipan (2002, p. 2) write, “the very expertise that bureaucrats and other actors enjoy, along with their structural role in the policy processes, provides them with opportunities to work against the interests of politicians and their supporters.”

Such adversarial view has, however, been challenged by several scholars (e.g., Carpenter and Krause 2015; Pierre and Peters 2017; Sobol 2016; Brehm and Gates 2015). Instead, an opposing view holds that administrative autonomy can in fact be functional and legitimate to the public. The classical example is Herbert Kaufman’s (1960) analysis of ‘the Forest Ranger’, resounding well with the public-sector motivation literature that recognizes how civil servants often embrace values of professionalism and a passion to promote public interests (Perry & Wise, 1990). In other words, civil servants frequently use their autonomy to pursue the organization’s objectives rather than their own.

Even more so, civil servants often produce more policy output than what they have been formally mandated to realize, and thereby exceeding the public service delivery. This is particularly evident in issues that politics, for various reasons, ‘fail’ to sufficiently manage. Rather, when issues require long-term perspective and are defined by high degrees of complexity, the incentives for politicians to translate them into realizable pledges diminishes. In turn, civil servants who are dominating the issue expertise receive significant discretion to pursue their activities without extensive oversight (Page, 2012). A central struggle for representative democratic politics thus refers to how it can escape ‘short-termism’ by empowering the administrative level with more autonomous action. I return to this topic in Paper 2.

It remains an empirical question to investigate when, if ever, senior civil servants are shirking at every opportunity, opposing public interest, are pursuing the organization’s outlined objectives or outperforming their expected service delivery. Based on the findings of this dissertation however, we can observe intriguing patterns of administrative professionalism when civil servants are allowed to take front positions in governance. Their relatively strong epistemic function in public affairs combined with their inherent virtues of stability and administrative capabilities (Bertelli, 2021) accord well with the AMR governance challenge. Notably, providing the public administration with managerial discretion to determine each respective organization’s own course of action, is identified as yielding functional

externalities for AMR governance (Shen & Cho, 2005, p. 844).

In addition, the increasing internationalization of civil services in Europe (Bauer et al., 2016; Christensen & Yesilkagit, 2019; Mastenbroek & Martinsen, 2018; Trondal & Peters, 2013) is also expected to influence administrative autonomy as the senior civil servants' participation in transnational networks and 'epistemic communities' (Haas, 1992) may wane the distinction of their domestic and international roles. While such transition from domestic administrative politics reflects the failure of sovereign states to govern several transnational issues, these novel forms of administrative coordination present new insights for public governance, such as how hierarchical and formalized structures can be supported by informal and horizontal activities (Ansell et al., 2023).

Furthermore, with respect to recent research highlighting power dynamics within European administrative networks (Schrama et al., 2022, p. 20), the AMR network space presents new examples of natural hierarchies in European administrative networks where actors with most elaborated and 'mature' governance strategies receive central positions in the network, allowing them, to some extent, to influence the prioritization and contents of the concerted action. Thus, the transnational administrative coordination presents another form of deliberate autonomy. This scenario, and its consequences for politics, is the topic for Paper 4.

In summary, the public administration plays a crucial role in contemporary democratic politics, shaping public policy and contributing evidence-based insights to political discourse. Contrary to being mere participants in public interest conflicts, autonomous civil servants can transcend politics and pursue their interests, as noted by scholars like Gary Miller and Andrew Whitford (2016). Yet, a nuanced view of autonomy is essential. Civil servants, given their diverse roles and rules, can also align themselves with the public interest or outperform their assigned tasks.

4 Research design

Having outlined the fundamental research question, the policy problem, and a broad portrayal of the public administration's role in European democratic governance, this section reflects on the dissertation's reliance on data and methods, followed by a concise summary of each paper incorporated in the dissertation.

4.1 Data and method

The research papers use diverse sources of data and methods. However, the backbone evidence for this dissertation is derived from an expert survey and interviews with senior civil servants engaged in AMR governance for each respective country. These data are, to varying extents, utilized in all four papers. While the papers investigate the specifics of these data, this section provides a more comprehensive reflection on their utility, contribution, as well as limitations and shortcomings.

By employing diverse methodologies and causal rationales across four distinct studies, a nuanced response to the overarching research question posed in this dissertation emerges. Study 1 adopts a mixed-method approach, integrating inferential statistics on governance performance with bacterial data, complemented by an institutional analysis derived from interview evidence. Combining these data sets, coupled with the application of theoretical frameworks such as path dependency and institutionalism, offers a comprehensive insight into the causal landscape governing administrative

arrangements and the management of AMR.

Study 2 endeavors to conceptualize AMR through the lens of politics and administration in Europe. Through interviews with senior civil servants and experts, the study argues that AMR governance exhibits three defining characteristics: it is a relatively overlooked political concern, involves considerable technical and social complexity, and grants the civil service a significant level of discretion in managing the issue. Although the AMR case is unique in many ways, this conceptual analysis may be generalized to other policy issues sharing those characteristics.

In Study 3, an amalgamation of aggregate scores reflecting AMR governance quality across the 27 EU Member States, coupled with data from the Eurobarometer, serves as the research design. To construct a plausible causal narrative, a theoretical framework is established, positing that coordination and corruption impact public awareness of AMR. Evaluation of these hypotheses is conducted using multilevel regression models, complemented by alternative specifications in the Supplementary Material. The statistical significance observed in these models substantiates the outlined causal narrative.

Lastly, Study 4 employs a mixed-method strategy by intertwining network techniques with interview evidence. Echoing Study 3, governance indices from the AMR expert survey and logistic regression modeling are utilized to assess hypotheses concerning how administrative-institutional factors may shape the inclination for transnational coordination. Interview evidence enriches the inferential analysis, culminating in a research design aimed at capturing perceptions of the causal relationship between institutional factors and transnational administrative coordination.

Hence, to obtain conclusive evidence regarding the administrative challenges posed by AMR, the approach was to adopt a broad perspective in terms of epistemology and scope. Therefore, the data collection is guided by the standard of mixed methods. Essentially, given the inherent complexity of the case study, I believe that confining research designs to either 'quant' or 'qual' would yield incomplete answers. This issue aligns with the longstanding debate between thin and thick description, where the former involves studying micro-behavior and the latter adds context to such behavior (see Geertz 1973). Hence, if the aim is to comprehend both institutions and agency, it seems crucial to integrate both thin and thick description,

and quantitative and qualitative approaches in data collection and analysis.

In agreement with several scholars of comparative public administration (Hendren et al., 2018; Perry, 2012; Riccucci, 2010), adopting a basic mixed methods approach improves most stages in doing research. It can enhance the researcher's propensity to ask questions characterized by much complexity since the analytical approach provides flexibility in the empirical research for latent variables such as power, governance, systems or networks. In addition, it eases a combination of induction and deduction, which, as a result, increases the falsifiability of a theory and multifaceted concepts (Popper, 1959).

4.1.1 Data collection

Embarking on the exploration of the research question posed in this dissertation, the relatively uncharted terrain of the behavioral and institutional dimensions of the issue at hand prompted an exploratory approach. In this endeavor, the method of conducting interviews served as a valuable entry point into the vocabulary of AMR management and the fundamental composition of institutions involved. Collaborating with colleagues within the research project that underpins this dissertation,⁵ the information gathered from these interviews proved invaluable in shaping the content of the survey and identifying suitable respondents. The inductive nature of these interviews, and those implemented at a later stage of the project, enriched the overall deduction process related to our research questions.

The choice of a quantitative survey undoubtedly stands out as the superior method when aiming to discern general patterns related to the issues under investigation in this dissertation. However, the implementation of a survey necessitates the identification of the target population. Employing a snowballing method for this purpose, we successfully compiled a survey population of around 150 senior civil servants engaged in AMR work, en-

⁵*The Governance of Collective Action: The Policy of Antimicrobial Resistance in Europe*, funded by the Swedish Research Council, together with Professor Jon Pierre (PI) and Senior Lecturers Björn Rönnerstrand and Elina Lampi.

compassing representatives from all EU member states as well as Norway and the UK. The experts were recruited through various methods, including communication with responsible government agencies in all countries, and in some cases after correspondence with embassies and responsible ministries. The obtained survey responses provide unique insights into the governance aspects associated with AMR in Europe. Building partially upon the content of these responses, a subsequent series of interviews was conducted to gather more in-depth insights supporting the findings. In total, 46 expert interviews were carried out, all conducted via Zoom due to the Covid-19 pandemic.⁶

As previous research has not adequately established the contextual foundations concerning AMR governance, our survey and interview approach primarily adopts an explorative stance. Consequently, our data collection is more inductive than deductive. In essence, the questions aimed to comprehend the subjects delineated in this dissertation pertain to fundamental aspects of governance, including management, inter-agency coordination, administrative autonomy and political control, and international cooperation. The articulation of these topics involved crafting multiple questions tailored specifically to the AMR case, and this process was conducted collaboratively with the research team.

The insights provided by these respondents offer invaluable qualitative information on contemporary issues related to managing AMR. However, they pose limitations for statistical analysis, primarily due to the relatively low number of respondents, resulting in under-powered analyses. Moreover, there is an inherent risk of varied interpretations of the survey questions, potentially yielding ambiguous results when making cross-context comparisons. Nevertheless, it is crucial to acknowledge that these respondents are leading professionals with a unique and specialized insight into AMR governance in their respective countries and the EU. In the context of exploring technical aspects such as governance quality, the perspectives of these few

⁶The interview guide and survey questions are available in the Appendix to Paper 1 and 3.

experts can be more illuminating than collecting opinions from a broader but less specialized representation, such as citizens.

Interviews serve as a valuable tool in capturing the contextual nuances and enabling a triangulation of the observed patterns in AMR governance. However, it is crucial to acknowledge that, like all individual survey data, interviews are inherently subjective perceptions. Consequently, the evidence gathered through interviews is primarily utilized in more aggregated analyses, such as those conducted at the regional level (North, South, East, West) in Europe. Additionally, interviews help navigate the complexities of AMR governance, delving into the multitude of issues and solutions that surface when engaging with various respondents. It is important to emphasize that deriving an association from a single respondent's statement alone is insufficient. Yet, by analyzing statements from nearly 50 respondents, we can undertake an examination of the collective narrative of their perceptions. This approach brings us closer to unraveling the causal story behind the complexities of AMR governance.

The survey data serve two main purposes in this dissertation. First, they are utilized to construct a multilevel regression analysis, serving as contextual variables that influence citizen perceptions as obtained from the Eurobarometer. This survey encompasses a representative sample of European citizens (N=26.501). Second, the survey data are employed in a quantitative network analysis, aiming to uncover dyadic relationships and tendencies of centrality. In conjunction with the originally collected data, AMR prevalence and antibiotic consumption data are incorporated to assess the AMR situation in European countries, with detailed descriptions available in Paper 1, 3, and 4.

In summary, the execution of this dissertation has been guided by a mixed-method approach, relying on various types of data. Expert survey evidence helps illustrate general patterns of AMR governance, while expert interviews provide behavioral insights into this context. When combined with more objective measures of AMR, I contend that this strategy aligns well with urge of combining thin and thick description in political science.

4.2 Dissertation in brief

4.2.1 Paper 1. The Four Worlds of Politics and Administration in the EU: How Institutional Arrangements Shape the Struggle Against Antimicrobial Resistance

The first paper of this dissertation (Pierre et al., 2023), published in *Journal of European Public Policy*, attempts to connect existing research on conceptual and qualitative aspects of administrative autonomy with outcomes related to AMR in Europe. It addresses the question of whether the basic institutional arrangements within the national public administration have an impact on the prevalence of antibiotic-resistant bacteria. The research inquiry is prompted by the empirical observation that the extent of AMR significantly correlates with four central administrative traditions in Europe (ECDC, 2022; Peters, 2021). Why does this correlation exist?

The emergence and diffusion of resistant bacteria are natural processes in societies, and we cannot assert that administrative arrangements directly cause varying degrees of AMR prevalence, just as institutions alone cannot generate such outcomes in the absence of actors (Emmenegger, 2021). Instead, the institutional effect should be viewed as part of a more extended causal chain acting as a cause of the causes, as articulated by one of the interviewees. For instance, variables influencing AMR include low public awareness of the issue, entrenched 'prescription cultures,' and hospital sanitation – factors that, we argue, are directly linked to the overarching institutional order. Following a core argument in institutional theory (e.g., North 1990, Ostrom 1990, March and Olsen 1989), individuals extensively rationalize their behavior based on perceptions of the institution's fundamental function, its level of institutionalization, and its widespread application in society.

The pivotal question is how individuals adapt to institutional rules and the inherent factors that tend to dominate such rationalization. Addressing these questions, we employ a combination of quantitative and qualitative evidence. First, we unravel the quantitative pattern of the relationship by regressing measures of institutional quality against the prevalence of two highly concerning antibiotic-resistant bacteria between 2013-2021. The central independent variable is a composite measure of executive capacity, encompassing steering capabilities, policy implementation, and institutional

learning. Controlling for various confounding variables, including antibiotic consumption, control of corruption, and the level of democracy, the analysis supports the relationship between well-ordered governance arrangements and low prevalence of AMR.

Second, to comprehensively understand the relationship and particularly the motivational underpinnings behind it, the second stage of the analysis incorporates interview statements about the interconnection between politics, administration, and AMR. Three key aspects are explored: (1) the basic administrative arrangement distinguishing line agencies versus ministerial institutes; (2) a general notion of administrative autonomy; and (3) the fundamental politico-administrative relationship concerning advice, dialogue, and command functions.

The multi-method analysis affirms that basic politico-administrative arrangements significantly influence the prevalence of AMR in Europe, resulting in four distinct clusters with varying struggles over AMR. Notably, different channels and levels of administrative autonomy play a crucial role in shaping this relationship. For instance, the strong emphasis on expertise and autonomous action within line agencies, the primary organizations in AMR governance in Scandinavian and West European countries, contrasts with the relatively higher levels of political control in Southern Europe or the relatively dysfunctional steering between ministries and research institutes in Central and Eastern Europe. These variations lead to four different modes of managing the issue, where experts have fundamentally different opportunities to initiate and execute administrative activities, contingent on the ways and degrees to which their political leaders dictate administrative action.

The findings underscore how often overlooked contextual factors can be decisive for public health outcomes and persist within administrative traditions. Furthermore, the data, particularly from interviews, provide direct insights into how individuals rationalize their behavior in relation to specific administrative traditions. Lastly, the paper raises questions about transnational administrative collaboration: if domestic politico-administrative arrangements are crucial for AMR governance, what implications does this hold for transnational efforts seeking to harmonize or standardize governance?

4.2.2 Paper 2. When the Cat is Away: How Institutional Autonomy, Low Salience, and Issue Complexity Shape Administrative Action

This paper (Carelli & Pierre, 2022), published in *Public Administration*, examines the question of transnational governance over AMR. It departs from the basic inquiry of how public governance emerges and addresses a common postulation that the degree of delegated decision-making power to senior civil servants and their organizations is a function of how important the issue is for the political rulers (Page, 2012). This procedure may wither the standard view of politicians as the sole decision-makers in advanced democracies as it empowers senior bureaucrats with increased regulatory and coordinative authority to address the issue.

Thus, as the well-known idiom says: when the cat is away the mice will play. The issue of AMR is characteristically defined by high degrees of complexity and low issue salience, which, in line with our expectations, results in significant amounts of delegated autonomy to senior bureaucrats. Current scholarship is inadequate to fully explain what this implies for public governance, more than a general misgiving that administrators with extensive public power may imperil democratic accountability and disincentivize effective action which ultimately reduces the public service delivery. However, we find support for a contrasting view. Senior bureaucrats who receive increased latitude for action (Shen & Cho, 2005) show intriguing examples of complex problem-solving and transnational coordination, which indeed indicates a more functionalist view of the administrative governance.

We conceptualize the exploited governance gap as ‘administrative action space’. When applied to the specific case of transnational governance over AMR in Europe, the administrative action space is manifested in three distinct ways: (1) by high degrees of latitude for action for involved actors, meaning that they receive extensive discretion to set their own operative strategy; (2) by little political intervention in the overall execution of the policy at hand given its low political salience; and (3) by collaborative strategies across jurisdictional borders as a response to the high complexity of the issue.

More specifically, interview evidence with a wide range of experts from each EU member state portray a fascinating contextualization of this administrative action space. Entrepreneurial senior public servants find complex

ways to create epistemic and collaborative governance over the collective action dilemma of AMR. With reference to the same empirical material, we argue that professional norms and public sector motivation drive these entrepreneurial solutions. These highly educated actors demonstrate a determination to prevent a post-antibiotic era, and a clear comprehension of the transnational complexity of bacterial spread, which arguably makes them suitable for leading the governance.

The paper makes three contributions. It advances a new concept of ‘administrative action space’ which can be generalized to other policy issues than health and agriculture policy and in various contexts. Second, the paper draws insights about how current transnational governance over AMR in Europe plays out, and what politico-administrative dynamics are inherent to such governance. Lastly, and most importantly, we take issue with the question of administrative autonomy and exemplify that significant amount of discretion and latitude for action can be compatible with increased delivery of public services and improved public accountability.

4.2.3 Paper 3. Ignorance is Bliss? Enhancing Public Awareness of Antimicrobial Resistance through Collaborative Administrative Governance

In the third paper of this dissertation (Carelli, 2024a), I analyze the correlation between administrative quality in AMR governance and the extent of public awareness concerning the issue. This study aims to describe a crucial demographic in the AMR context – the masses of individuals benefiting from the public good but who are potentially obstructing it as well. Existing research has consistently emphasized that factual knowledge and awareness are pivotal factors in understanding human behavior.

Drawing on Papers 1 and 2 of this dissertation, I construct a theoretical framework wherein the quality of administration over AMR shapes public awareness levels. I argue that merely adopting a robust basic administration, such as surveillance or monitoring systems, is likely to be negatively related to AMR awareness. This is because individuals would not, to a large extent, be exposed to the issue in the post-enactment phase of the policy. Instead, to sustain high levels of awareness, as during the policy enactment phase, administrative governance needs to spread implementation across multiple sectors and actors, enabling a significantly wider ‘physical’ penetration in

society. In turn, individuals face a greater chance of being exposed to the issue. Lastly, I theorize that this positive relationship is contingent on levels of public sector corruption. This form of corruption distorts the general relationship between the state and citizens and is therefore assumed to reduce individuals' trust toward information provided by the civil service.

Using data sourced from a Eurobarometer survey measuring different facets of antibiotics and AMR, I establish a proxy for AMR awareness. Employing multilevel modeling to analyze these data alongside several factors extracted from the aforementioned expert survey, the findings offer partial support for my hypotheses. Notably, collaborative AMR management exhibits a significant association with heightened levels of public AMR awareness. These outcomes remain robust even after accounting for a spectrum of potentially confounding factors and employing diverse modeling strategies. Intriguingly, an interaction emerges between public sector corruption and this variable, indicating that the effect is reversed in the presence of high levels of corruption.

The results suggest that citizens may adopt a relatively passive stance in the aftermath of political decisions, particularly when the issue lacks significant political salience. Intriguingly, factors typically expected to influence to carry influence, such as awareness-raising campaigns, adherence to professional prescription guidelines, or the presence of a clearly defined national action plan, show however no significant associations with public AMR awareness. This paradoxical outcome raises the question of whether effective administrative governance might inadvertently contribute to lower public awareness, potentially leading to increased antibiotic consumption and elevated levels of AMR. The findings underscore the need for sustained attention to such issues before, during, and after political decision-making.

Furthermore, the results underscore the significance of One Health approaches in the AMR framework. Given that antibiotic consumption, contamination, and the proliferation of AMR span various sectors of society, coordinated governance becomes imperative. Importantly, a key finding emphasizes that public behavior can be influenced by the operations of the public administration. While prior research has extensively demonstrated the impact of administrative quality on institutional trust and policy satisfaction, this study highlights the administration's role as a continuum of politics, actively shaping public behavior.

4.2.4 Paper 4. Drivers of Transnational Administrative Coordination on Super-Wicked Policy Issues: The Role of Institutional Homophily

The final paper of this dissertation (Carelli, 2024b) builds on the findings of Paper 2, which concluded that senior administrators leverage their discretion to establish and sustain transnational coordination in Europe. This paper aims to examine the mechanisms through which such governance forms materialize and the factors that support them. In addition, the networking dynamics that emerge is a manifestation of the limits of governance capacities in sovereign political orders. The national administrations, on the one hand, only possess formal authority to govern and implement policies at the domestic level, while the European Union, on the other hand, lacks formal jurisdiction over health policy, resulting in weak opportunities for coordinated governance. This prompts an exploration of how involved actors navigate this governance vacuum to foster informal administrative coordination.

Observing the basic characteristics of the networking space, a notable variation in centrality among states emerges. Specifically, a few states with relatively low levels of AMR occupy central positions in the network, while countries with higher levels of AMR tend to be situated in the periphery. This pattern suggests varying degrees of activity and engagement among states. To elucidate this phenomenon, I employ the theoretical framework of homophily, positing that similarity fosters connection, to provide an explanation.

Utilizing homophily as a foundational principle for coordination, I formulate a set of hypotheses concerning the inherent aspects of administrative organization conducive to collaboration. My theoretical framework posits that countries with similar administrative structures are inclined to favor collaboration, that a shared quality of administrative governance promotes collaboration, and that having common objectives for administrative governance fosters collaboration.

I employ data from the AMR expert survey and social network analysis to evaluate these hypotheses. Respondents were asked to indicate whether they have established bilateral connections with other states, generating an adjacency matrix of dyadic relationships. I utilize the Logistic Regression Quadratic Assignment Procedure to examine the significant association be-

tween the nodes, providing odds ratios for connection. To enhance the quantitative measurements, I incorporate interview testimonies corresponding to the same topic.

The results offer partial support for the hypotheses. Crucially, they validate the hypothesis that countries with similar quality of administrative governance, both in terms of specific quality for governing AMR and quality in a broader sense, are more likely to establish connections. Regarding the latter form, countries with comparable governance quality are four times more likely to coordinate. Additionally, experts emphasize that informal networking activities are more effective in establishing fruitful transnational coordination than formalized connections. However, informality directly relates to the emergence of natural hierarchies, with certain states or groups of states appearing to hold powerful positions over the style and substance inherent in such connections.

The study has at least two key implications. Firstly, international issues create governance vacuums that national administrations must address through coordinated activities and strategies. Informal networks among national administrations develop to overcome these challenges, and the paper illustrates that countries with prominent positions in knowledge and administrative governance quality tend to exploit central positions within these networks. Secondly, administrative quality emerges as a crucial factor to consider when assessing the functionality of informal transnational networks. This finding has significant implications for transnational governance over shared public goods, such as the longevity of effective antibiotics.

5 Conclusions

Various administrative arrangements do impact the governance of AMR in Europe, as revealed by the findings of this dissertation. However, the crucial question is not whether the public administration plays a role, as it is inherently involved in public governance, but rather how and in what aspects it matters in AMR governance.

AMR governance is reflected in its outcomes, such as fluctuations in AMR levels and antibiotic consumption. These outcomes are influenced by both domestic and transnational administrative activities. The configuration of the politico-administrative state domestically provides blueprints for administrative action. When an issue like AMR is not sufficiently salient in the media or among politicians, and in contexts with extensive political control over the public administration, administrative activity over the issue may be neglected. However, the dissertation illustrates instances of effective governance that stretch beyond existing theories, showcasing examples of innovative administrative management over AMR.

The reliance on epistemic values supports administrative organizations in navigating challenges, allowing them to overcome the constraints imposed by extensive political control. The degree of autonomy granted to civil services, particularly in charting their own course of action in managing AMR, emerges as a pivotal factor in establishing good governance. The professionalism and a shared commitment to addressing the imminent threat of AMR are also identified as decisive elements for fostering transnational coordination.

Observations from diplomatic activities highlight that a fundamental task in international politics is establishing amicable relations with other states. However, many issues necessitate more than bilateral friendship; they demand coordinated administrative action. The actors and organizations engaged in the European AMR domain demonstrate evident efforts to establish coordination through informal logics of action, leading to the formulation of harmonized policies. The dissertation underscores the importance of recognizing these factors in the pursuit of effective governance over AMR at both domestic and transnational levels, but also offers new evidence and theoretical reasoning that sheds light on why certain countries collaborate with specific partners over others. According to my findings, there exists a tendency wherein countries show a preference for coordination with others that share similar qualities in administrative governance. This not only enriches our understanding of power dynamics within informal modes of transnational governance but also lays the groundwork for future research in this area.

This dissertation has concentrated on the administrative facets of AMR governance, offering only glimpses of the political dimension. Nonetheless, administrative politics emerges as a distinctive phenomenon. Administrative effectiveness and accountability is, to some extent, the currency rate of democratic politics. Administrative activity serves as a pivotal foundation in the state-and-society relationship, influencing the opportunities for citizens to sustain factual knowledge on complex and enduring issues. Therefore, in scenarios where individual behavior and the mechanisms of representative democracy lead to collective action tragedies, the public administration becomes a crucial force for upholding good governance.

The civil service and its involved actors are indeed central elements of contemporary public governance. Their basic function in the political system has since the emergence of modern, democratic states remained characteristically stable and 'bureaucratic', i.e., to conduct the rather dull but necessary tasks of implementing and administering public policies and ensuring an effective and lawful delivery of public services. At the same time, the state and its administrative echelon has undergone profound changes since its inception. How this combination of path dependency and persistent institutional changes affects administrative politics remains, in my view, one of the greatest puzzles in studying the state. This dissertation means to con-

tribute to that puzzle by presenting new observations of the administrative struggles to govern the growing global challenge of antimicrobial resistance.

Taken together, I have exemplified four ways in which the administrative configuration in democratic states shapes AMR governance. On the domestic scale, collaborative administrative management correlates with heightened public awareness of AMR, while the various configurations of politico-administrative relationship, and therefore equilibria of political control and administrative autonomy, dictates the governance approaches to AMR. On the transnational scale, administrators demonstrate innovative forms of coordinative governance driven by low political attention, but their degrees of connection is shaped by the quality of administrative governance. A pivotal recurring theme in these studies revolves around the concept of administrative autonomy. When addressing challenges inherent in large-scale collective action dilemmas, such as transboundary and gradual developments, the research findings put forth in this dissertation suggest that embracing deliberative and delegated autonomy can enhance governance outcomes.

Taking one step back to reflect upon this conclusion, it is worth noting that life expectancy has reached astonishing levels in Europe since the pre-antibiotic era approximately 80 years ago, when infections like pneumonia, tuberculosis, sinus infections, strep throat, and urinary tract infections prospered in societies. But on the 6th of June 1944, the US military advertised the slogan “Thanks to Penicillin. . . He Will Come Home!”, referring to how 2.3 million doses of penicillin – the new ‘miracle drug’ – were distributed to the soldiers at the D-Day invasion of Normandy. Developing penicillin on such a mass scale was a collective effort of several companies, fueled and funded by the U.S. government, but was inherently realized as an instrument of war (Quinn, 2013). Nonetheless, the innovators of penicillin – Sir Alexander Fleming, Ernst Chain, and Sir Howard Florey – were awarded the Nobel Prize in Medicine the following year. In his Nobel speech, Fleming explicitly said: “The time may come when penicillin can be bought by anyone in the shops. Then there is the danger that the ignorant man may easily underdose himself and by exposing his microbes to non-lethal quantities of the drug make them resistant.”

Fleming was right, and here we are 80 years later fronting a daunting issue for global public health defined by a market failure, where time is running out and the discovery of new antibiotics have been obsolete since 1987

(Gotham et al., 2021; Miethke et al., 2021; Silver, 2011). In consequence, while being an inherently microbiological problem, it remains, as the UK Special Envoy on Antimicrobial Resistance Dame Sally Davis succinctly expressed it in an interview with our research team, first and foremost a *governance* problem. And while solving governance problems are per definition the prerogative of political decision-makers, the issue’s creeping development, its complexity and ‘wickedness’, and its transnational and collective action features prevent this from occurring at an adequate level. It exposes, in other words, the limits of representative democracy to handle difficult large-scale collective action dilemmas.

But it does also demonstrate how governance can be created and sustained within and across states despite, or perhaps with thanks to, different centuries-old administrative systems. The well-ordered administrative level is, as one interviewee expressed it, already engaged. This means that senior experts and civil servants all over Europe work to their best capabilities to collectively containing the escalating threat of AMR. However, their capacities are to some extent defined by their resource allocation, recognition, and popular attention. In most countries interviewed but particularly in countries who are lagging in containing AMR, the general view is that the lack of political attention results in few resources and self-critical *raison d’être*. As one interviewee maintained, “we could not send a politician to the network because they don’t understand the AMR problem, and if we send an expert, decisions might not be implemented because politicians do not listen to the experts.”

When senior civil servants are empowered – and given sufficient resources and latitude for action – they do, contrary to a common postulation in rational choice theory, in fact show strong signs of working instead of shirking. We can observe how the opportunity for successful governance over AMR is not only related to states’ overall quality of government or levels of income, but rather refers to a function of the forms and degrees of administrative autonomy. Therefore, in expert-heavy issues such as large-scale collective action dilemmas, administrative autonomy can constitute a crucial factor for creating long-term, evidence-based, and cross-sectoral management, but also for taking leading positions in international governance. Political oversight over administrative activity is, naturally, essential for public accountability, but it remains, as Shen and Cho (2005) maintain, a big difference to delegate

administrative latitude for objectives versus latitude for action. The latter form is where politico-administrative concerted action is argued to not only realize the outlined objectives, but to excel them.

The art of creating and sustaining global governance remains one of the greatest challenges of our time, where we front not only AMR but also the existential threats of climate change, biodiversity loss, and zoonotic diseases, which by most predictions will result in new global pandemics. These issues are intertwined, and they all point to the need for governance over the collective action. This dissertation accentuates the role of the civil service within the larger democratic political order and within the international context of Europe to realize such international governance. It goes without saying that issues of this sort cannot be solved by sovereign political procedure alone, but requires precision, speed, clarity, documentary ability, continuity, discretion, unity, rigid subordination, reduction of friction from material and personal expenses – factors that are, according to Max Weber, unique to the administrative organization.

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