Nudging Leviathan, Protecting Demos

A Comparative Sociology of Public Administration and Expertise in The Nordics

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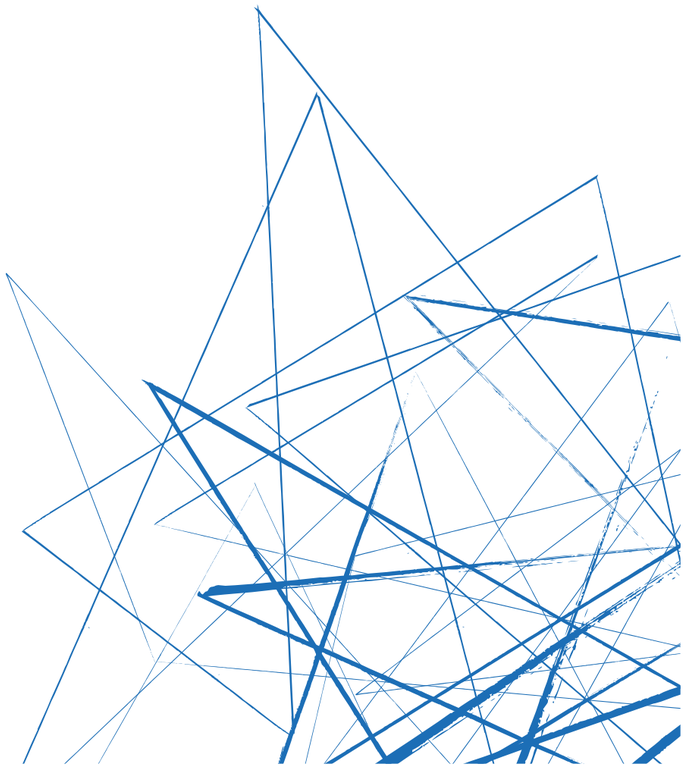

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Jakob Laage-Thomsen

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A COMPARATIVE SOCIOLOGY OF PUBLIC ADMINISTRATION AND EXPERTISE IN THE NORDICS

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HANDELSHØJSKOLEN

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A Comparative Sociology of Public Administration and Expertise in the Nordics

Jakob Laage-Thomsen

Doctoral School of Copenhagen Business School

Supervisors: Leonard Seabrooke
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Summary

This thesis investigates how interactions between public administrative systems and systems of professions and expertise shape regulatory governance. These interactions are investigated through comparative studies of two 'jurisdictional' arenas, organized around behavioral change (of the public) and public health security. These represent forefronts in research and public policy interventions and reveal the moral stakes involved in the science-political-administrative nexus. In the arena of behavioral change, 'Behavioral Insights' (BI) has proven an influential approach on how to understand and nudge citizen behavior, while, in the arena of public health security (PHS), 'All-Hazards Security' has evolved as a dominant but contested frame for understanding how best to protect society from the effects of unpredictable health events such as pandemics. These arenas are investigated and compared through four papers.

Empirically, the thesis relies on interviews and surveys with civil servants, academics and consultants in Denmark, Norway, and Sweden in combination with historical and policy mapping methods. The first paper investigates the role of civil servants vis-à-vis external actors in establishing new expertise in the public sector by comparing the use of BI by four Danish governmental agencies since 2010. The second paper compares the process of establishing BI across public administration and expert ecologies in Sweden, Norway and Denmark since 2010. The third paper investigates how the beliefs of experts across academia, public administration and expert organizations influence policy preferences and responses by focusing on the organization of PHS and policy responses during the first wave of the COVID-19 pandemic in Denmark, Norway, and Sweden. The fourth paper investigates how the authority of public agencies depend on developments in the expert system by comparing changes to public health agencies' authority on the issue of PHS from 2001 to 2021.

The papers show how professional projects travel from origins in the expert system to impinge on bureaucratic expertise, but that such travels depend on strategic actors building alliances and connections, as well as opportunity structures within the politico-administrative system. Professional projects empower different occupational groups and are a crucial source of technical and moral authority in public administration. They matter because expertise, conceptualized as professionally constructed sets of diagnosis, inference, and treatment, entail different visions of the common good and what the interests of citizens are. This has important implications for how

we think about the dynamics of administrative change; are we dealing with a Nudging Leviathan or a Protecting Demos?

What is at stake in these transformations is who has authority, how that authority is legitimated, and what drives transformations in authority at the meso-level across the politico-administration system. By connecting across literatures in public administration and the sociology of professions and expertise, the thesis provides new tools and concepts to study and compare expert authority in public administration.

Dansk Resumé

Denne afhandling undersøger hvordan samspillet imellem offentlige administrative systemer og videnssystemer struktureret af professioner og eksperter, påvirker udviklingen af offentlige styrings- og reguleringsværktøjer. Dette samspil undersøges gennem komparative undersøgelser af to 'jurisdiktionelle' områder der er organiseret omkring adfærdsforandring (af borgere) og sundhedssikkerhed. De to områder repræsenterer forfronter inden for både forskning og politiske interventioner, og illustrerer derfor de moralske afvejelser der er på spil i mødet mellem videnskab, politik og forvaltning. 'Adfærdsindsigter' er vokset frem som en indflydelsesrig tilgang til hvordan man kan forstå og forandre borgernes adfærd inden for adfærdsændringsområdet, alt imens 'All-Hazards Security' har udviklet sig til en dominerende, men omstridt ramme for at forstå hvordan man bedst beskytter samfundet mod sundhedskatastrofer såsom pandemier, indenfor sundhedssikkerhedsområdet. Afhandlingen består af fire artikler der undersøger og sammenligner disse områder.

Empirisk bygger afhandlingen på interviews og spørgeskemaundersøgelser med embedsmænd, akademikere og konsulenter i Danmark, Norge og Sverige, i kombination med historiske og politiske kortlægningsmetoder. Den første artikel undersøger embedsmænds rolle vis-a-vis eksterne aktører i forbindelse med etableringen af ny ekspertise i den offentlige sektor ved at sammenligne fire danske styrelsers bruge af Adfærdsindsigter siden 2010. Den anden artikel sammenligner processen med at etablere adfærdsindsigter på tværs af den offentlig forvaltning og vidensøkologier i Sverige, Norge og Danmark siden 2010. Den tredje artikel undersøger, hvordan eksperters overbevisninger, set på tværs af universiteter, offentlig administration og ekspertorganisationer, påvirker politiske præferencer og krisehåndtering ved at fokusere på organiseringen af sundhedsberedskabet og den politiske håndtering af den 'første bølge' af COVID-19-pandemien i Danmark, Norge og Sverige. Den fjerde artikel undersøger, hvordan offentlige myndigheders autoritet afhænger af udviklingen i videns systemer ved at sammenligne forandringer i sundhedsmyndighedernes autoritet over og i sundhedsberedskabet fra 2001 til 2021.

Tilsammen viser artiklerne hvordan 'professionelle projekter' formår at rejse fra deres udspring i videnssystemer for at indlejres som bureaukratisk ekspertise, og særligt at sådanne rejser afhænger af strategiske aktører der bygger alliancer og forbindelser, samt mulighedsstrukturerne inden for

det politisk-administrative system. Professionelle projekter styrker forskellige faggrupper på bekostning af hinanden, og er en afgørende kilde til teknisk og moralsk autoritet i den offentlig forvaltning. De betyder noget, fordi 'ekspertise', forstået som professionelt konstruerede sæt af diagnose, inferens og behandling, indebærer forskellige visioner om, hvem borgeren er. Dette har konsekvenser for hvordan vi forstår udviklingen af den offentlige forvaltning; har vi at gøre med en 'Nudgende Leviatan' eller en 'Beskyttende Demos'?

Det der mere generelt er på spil i disse processer er; hvem der har autoritet, hvordan denne autoritet er legitimeret, og hvad der driver forandringer i autoritet på et meso-niveau på tværs af det politisk-administrative system. Ved at forbinde litteraturer indenfor offentlig administration og professions- og ekspertisesociologien giver afhandlingen nye værktøjer og koncepter til at studere og sammenligne ekspertautoritet i offentlig administration.

Acknowledgements

Ideas do not really belong to individual people. I am therefore unashamed to borrow the great metaphor of scientific work used by my senior PhD colleague Rasmus Corlin Christensen in his dissertation. He cited the famous idiom by the English Clergyman and Poet John Donne, that "No man is an island", and used it as a metaphor for his own thesis. The idiom seems particularly poignant as it was written by John as he recovered from an epidemic of 'spotted fever' that swept through London in 1623-24, and it expresses the importance of connections for the wellbeing and survival of the individual. 'Recovering' not from a typhus epidemic but from a coronavirus pandemic, I share the sentiment that a research project, like life itself, is not an isolated island, and many people have helped keep 'my island' an isthmus or at least part of thriving archipelago with daily ferries and odd cruise ships.

Without sand there can be no island. And I am grateful for the sand provided by two European Commission Horizon 2020 projects COFFERS and ENLIGHTEN (EU Horizon 2020 Grant No. 727145 and 649456) which together co-financed my studies at the Department of Organization. I am also grateful for the supplementary grant provided by the Nordic Sociological Association for additional data collection on the Covid-19 pandemic, and the travel stipends from Otte Mønsteds Fond and William Demand Fonden.

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my work, others have shared their ideas and inspirations, but all have contributed to giving a sense of collective purpose and island communality.

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Finally, with the fear of having now stretched my Caribbean metaphor to its limits, palms and shade has been provided by family and friends in these three years. I am indebted to all of you for keeping me sane and happy. Most especially, my girlfriend Linea who has always been supportive and reminded me there is more to life than academic performance. And to my parents, for everything.

My island has driftwood on the beach, meticulously arranged in legible shapes. It reads:

"*Til Mor og Far, Jeg håber det giver mening*".

Copenhagen, April 2022,

Jakob Laage-Thomsen

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1. Thesis cover

1.1 Introduction

This thesis concerns how societies measure and protects the common good through regulation; how death is minimized, and 'utility' optimized. Particularly, it is interested in the professional custodians, like Economists and Doctors, who hold more or less authoritative positions in and outside public administration to diagnose and prognose problems and suggesting the best remedies. In public administration - both in its minimal definition as the central-administrative institutions of the state, and in its more expansive definition as a distributed 'policy advisory system' (terms I come back to later) – professional and bureaucratic identities coexist, and expertise is mobilized to define policy problems, treat citizens, and adjudicate political interests based on more or less formalized diagnostic systems.

From this starting point, the thesis investigates how interactions between public administrative systems and systems of professions and expertise shape regulatory governance. Of particular interest is the way in which professional systems interact with administrative expertise differently between policy areas. The ambition is, through empirical studies in Denmark, Norway and Sweden, to advance a comparative sociology of public administration by building on and juxtaposing literatures in public administration and in the sociology of professions and expertise.

Regulatory governance is associated with the growth of the regulatory state (as discussed further in the next section). It refers to the governance – that is the steering or administration – of regulation, which here is used to mean the structures and practices of rule-making, rule monitoring and rule enforcement (see Levi-Faur, 2011, 2012). These rules are distinguished from primary law formulated by the legislature (e.g. parliament) or verdicts and judgements by the judiciary (e.g. courts). Regulation is about bureaucratic and administrative rule making, information-gathering and enforcement. The literature on governance has shown how these kinds of structures and activities are not limited to state actors themselves but can be delegated or assumed in multi-level and distributed systems of state and non-state actors and institutions. Governance thus refers to the process of governing and steering rather than the 'government' or 'state' per se. While the concept of governance has thus decentered governing from government, and opened analytically for the investigation of regulatory practices and structures among all societal actors, I here employ the term in close connection with its sister-term, the regulatory state. Here contemporary capitalist

democracies are seen to claim a legitimate monopoly on – that is authority over – the deployment and distribution of power through regulation (ibid.). Thus, states and their public administrations still claim ultimate jurisdiction over much societal regulation, and it is this kind of regulatory governance I study.

Administration and regulation matters because it is the bridge between means and ends in public policy, and expertise has come to be a central vehicle for state authority in this process. The work of James C. Scott may be the most familiar exemplar of how regulatory systems and expertise co-evolves, and how they matter for how 'the state' views citizens and in turn structure the kind of policies that are pursued[1] (J. C. Scott, 2008). Weber in his conception of bureaucracy saw its legitimacy as resting, amongst other things, on the disciplinary and practical knowledge of its bureaucrats (Weber, 2019 (1921)). But like bureaucracies, disciplines and professions change over time, engaging in constant adjustments and competition between actors claiming 'authoritative expertise'. Thus neither 'Economists' nor 'Doctors' form perpetual monolithic groups, but rather occupy changing positions in an always dynamic 'system of professions' in and across the state (Abbott, 1988). How these constellations change over time and their effect through the bureaucracy is thus a central factor in understanding contemporary transformations of the state, and the central object of this thesis.

Rather than dealing with the authority of professional groups as uniform collective actors and their 'general' influence on the state, the thesis compares two specialized and interdisciplinary arenas central to contemporary public administration; behavioral change (of the public) and public health security. Each arena, in its own way, represents forefronts in research and public policy intervention that reveal the moral stakes involved in the science-political-administrative nexus: the interpenetration of expert and publica-administrative systems. In the arena of behavioral change, 'Behavioral Insights' has proven an influential approach on how to best understand and change citizen behavior, while, in the arena of public health security, 'All-Hazards Security' has evolved as a dominant but contested frame for understanding how best to protect citizens and

[1] For the unfamiliar, Scotts main argument is that the modern state is characterized by its development of a much clearer *vision* of society compared with earlier and weaker states, through a two-pronged process. On the one hand it creates a system of observers that collects information through regular and simplified taxonomies to make the world legible. On the other hand, it transforms the world in the image of these taxonomies through, for example, public administration. Thus, public administration and science has coevolved in a symbiosis where statisticians, economists, biologist and doctors have perfected their expertise while making the world actionable for the state.

society from the effects of unpredictable health events such as pandemics. Both cases, 'Behavioral Insights' and 'All-hazards security', represent historic challenges to existing professional and bureaucratic structures in the state.

The arena of behavioral change revolves around the question of how to change or help change individual behavior(s) away from 'undesired' and towards 'desired' behaviors however they may be defined. It is thus a cross-cutting concern in government and public administration. 'Behavioral Insights' draws together classical economic theory, cognitive science, and behavioral psychology, constructing an image of the less-than-rational actor with specific deficiencies in rational decision-making that can be experimentally characterized and anticipated in order to develop more effective policy tools (OECD, 2017). Most will be familiar with the concept of 'nudging' which has become a popularized intervention based on Behavioral Insights, and refers to interventions in and manipulation of the context in which individuals make decisions (known as 'choice architecture'), theoretically without removing options or changing economic incentives (Thaler & Sunstein, 2008; Hansen, 2016). As an approach Behavioral Insights has gained politico-epistemic authority by combining experimental evidence-making with political practicality, in the way that it allows policy-makers to act as "choice architects", while behavioral experts act as intermediaries between science, politics and citizens (Strassheim et al., 2015). The growth of Behavioral Insights can thus be interpreted as indicative of a general trend in regulatory policy towards preference for particular kinds of 'evidence-based policy' dominated by ideas of value-neutrality that may not live up to closer scrutiny.

In public administration, and as I show through the thesis, behavioral and experimental approaches to policy-making has contended with existing legal-rights approaches based on legal reasoning and existing professional incumbents favoring more 'structural' approaches (as illustrated by Hampton & Adams, 2018 in the UK government). But the approach has also been shaped by a concurrent movement towards more data-driven and 'a-theoretical' approaches to public policy driving towards algorithmic prediction (Broomfield & Reutter, 2022; Farell & Fourcade, 2022; Ratner, 2021). While nudging and BI came to prominence with moral foundations based on the image of neutral expert interventions based on 'paternal liberalism' (Thaler & Sunstein, 2008), sceptics have seen it as encroachment by the state into areas of human behavior that were previously outside of the purview of the state. For example, more 'libertarian' criticisms have focused on the central role that nudging accords to experts, and the assumption

that these activities are unproblematic as long as citizens best interests "as judged by themselves" are being promoted (e.g. Sugden, 2009, 2017). 'Statist' critiques are often based on the opposite view, that BI is pro-market and anti-state. Such critiques have highlighted how BI leans towards market-based rather than egalitarian initiatives (e.g. Fitzpatrick, 2011) or sees BI as the latest vehicle for extending neo-liberal governance. These debates around nudging and BI question the moral values attached to the implications of BI based governance in democratic systems, and notably the potential threat of "technocracy" or "psychocracy" stemming from the empowerment of policy-makers and experts through experimentation and the opaque nature of nudge policies dictated by psychological expertise (Feitsma, 2018; Leggett, 2014). However, the contradictory nature of criticisms and the various attempts at responding to them and correcting course (John et al., 2013; Reisch & Sunstein, 2016; Sunstein, 2015) points towards the necessity to engage empirically with the transformations and use of this type of (policy) expertise as it meets public administrative systems in practice.

The arena of public health security revolves around the question of how to anticipate and plan for (always future) health risks and emergencies, and who should be authorized to make these dispositions. The arena of public health security has emerged through a historical process whereby public health concerns were coupled with national (and international) security issues (Lakoff, 2017; Weir, 2014). Through this process, techniques and methods designed and developed for Cold War defense by security professionals, such as scenario planning and imaginative enactments found their way into public health planning via the concept of (all-hazards) 'preparedness' (Zylberman 2016 in David & Dévédec, 2019). Preparedness captures the idea that societies cannot prevent catastrophic events, like pandemics, but can prepare for them to mitigate their consequences.

In the Danish context the important shift from a 'proportional' to a 'precautionary' principle of government response during the COVID-19 pandemic illustrates the stakes involved (Folketinget, 2021). While these principles do not map neatly onto professional and administrative judgements during the pandemic, previous research has presented public health security as straddling two opposing logics, a medical logic of prevention favouring proportional responses based on historical risk analysis and extensive trials, and a security logic emphasizing prompt responses to uncertain threats to protect critical infrastructure and mitigate systemic vulnerabilities (Lakoff 2017). Much research addressing the entanglement of health and security, and subsequent

processes of either a medicalization of security (Elbe 2011) or securitization of health (Rubin & Baekkeskov 2020), has so far neglected how these two processes stand in conflict with each other and creates an always unstable expert compromise. The compromise between these positions has had an important effect on how national Public Health Security systems have evolved and responded to historic and recent public health crises. Understanding how these positions are distributed across both expert and public administrative communities becomes important for understanding the response of health authorities to current and future health crises.

These two arenas circumscribe the substantial issues at stake in the thesis. To compare how expertise matters for state policies and regulation, the thesis uses interviews and surveys with civil servants, academics and consultants in Denmark, Norway, and Sweden in combination with different historical and policy mapping methods. A central argument, that I will elaborate and support more in this thesis, is that different policy areas, in virtue their substantive distributive issues and the forms of experts and expertise involved, exhibit different (national) patterns of development.

The arenas are connected by their potential to illuminate contemporary transformations of authority in public administration and public sector professionalism. It is these transformations that I turn to in the next section, before providing an overview of the fractal landscape of literatures on public administration and expertise. With inspiration from Noordegraf 2020, I use this overview to elicit three core concepts that structure the literatures: 'authority', 'autonomy' and 'expertise', and I use these to refine the research questions pursued in the thesis and show how they connect to the four paper-chapters that make up the main body of the thesis (section 1.2). With the questions laid out, I present the conceptual and empirical choices that have structured and connect these papers (section 1.3 and 1.4). Finally, I summarize the main findings and contributions of the papers (section 1.5.), before leaving them the stage in the main body of the thesis.

1.2 Professionals in public administration

Developments in the last 20-30 years in capitalist-democracies has arguably made the study of expertise in public administration even more important. This is because most societies have in fact experience an increased in the breadth and depth of regulation, at the transnational, national

and sub-national level, despite or perhaps because of the 'neoliberal' ideological creed of deregulation. This was noted with the coining of the term 'regulatory capitalism'[2] . The development of regulation should be understood with reference to a "new" division of labor between state bureaucracies and society, which saw an increase in delegation and new inter-institutional arrangement of regulation, leading to the proliferation of new technologies of regulation and a growth in the influence of "experts in general" and international networks of experts in particular (ibid.). According to this conception, the regulatory state "claims a legitimate monopoly on the deployment and distribution of power through rule making, rule monitoring, and rule enforcement" (Levi-Faur, 2013, p. 39). Overall, then, the focus on 'regulation' refers to the separation of the the regulatory from the legislative and judicial. In a Danish context, this has been noted in the book "when bureaucrats legislate" (J. G. Christensen et al., 2020), looking at the increased use of 'bekendtgørelser' as a form of regulation not directly supervised by parliament. These concerns with the increased prevalence of regulation as a form of state intervention in society accompanied by forms of regulatory power delegation are shared by or reflected in most literatures on public policy and administration.

Sociologists of professions and sciences studies have long examined the increasing proliferation of and reliance on expertise in contemporary 'knowledge societies'. Paradoxically, this increased reliance has taken place at the same time as contestations against experts and expertise have risen and new forms of knowledge organizations based less on institutional accreditation or scientific reputation have emerged (Eyal, 2019; Strassheim, 2015). In societies increasingly reliant on 'regulatory science' to solve and 'depoliticize' complex problems, the very operation of such applied and prescriptive science tend to become 'politicized'. The paradox go to the heart of ideals of science and democracy, with some arguing that in democracies faced with complex problems, successful governing must be based on a sort of "division of epistemic labor" whereby a subset of knowledge-intensive questions can only be answered by specialists while value-judgments remain to be solved by the general public in deliberative procedures (H. Collins & Evans, 2008a; H. M. Collins & Evans, 2002; Kitcher, 2011) or if not by experts then through rigidly controlled and curtailed expert systems (See Timmerman and Berg 2013 in Eyal, 2019, p. 34ff). Others argue

[2] In a Danish context, the more popular corollary notion of the 'Competition State' (Konkurrencestaten) exists, which rather than engaging in or expanding the direct planning of the welfare state, operates though the creation of regulated and transparent markets and performance management through NPM reforms (Pedersen, 2011). Evaluations have shown the decidedly mixed results of these management systems on welfare performance and quality (Møller et al., 2016).

that it is exactly this attempt to discriminate between a value-neutral sphere of scientific knowledge and a value-laden sphere of politics that is contested and cannot be taken for granted (Jasanoff, 2004; Latour, 1993). In this perspective, the concept of expertise reflects not only the rise of "expert society" but its crises; as long as it was clear who were "the experts" and how to recognize them, there was little need to discuss expertise (Eyal 2015).

Theoretical developments in public administration can in part be seen as a response to these developments. For example, in the literature on 'Policy Advisory Systems, the approach has decentered the analysis in relation to the civil service, treating the public bureaucracies as one type of actor in a system of 'policy advice'. Policy advisory systems have developed a detailed framework for studying the actors supplying policy advice and their positions in relation to the politico-administrative system, geared towards comparative and historical study of said systems' development (Craft & Howlett, 2012; Halligan, 1995; Howlett & Migone, 2013; van den Berg et al., 2019a). A consensus has developed that advisory systems are changing along two dimensions, "externalization", that actors outside of government exercise increasing influence, and "politicization", that partisan political aspects of policy advice has displaced non-partisan public sector sources of policy advice (Craft & Howlett, 2013).

What emerges from these trends, is a sense of a shift in the autonomy and authority of different actors in the politico-administrative system and ultimately where power is located in these systems. What is at is at stake in these transformations is who has authority and how that authority is legitimated, and what drives these dynamics/changes in authority at the meso-level across the politico-administration system. This becomes a central meeting point in newer theories in "second-wave" Policy Advisory Systems and Sociology of Professions and Expertise that provide meso-level theories of change. To improve our understanding of these dynamics, the thesis juxtaposes theories of change in public administration (PAS) and in the sociology of professions and expertise around three main concepts: 'authority', 'autonomy', and 'expertise'. These are broad and multifaceted concepts that contain many positions and approaches that go beyond the immediate concern of the thesis, yet they are useful for ordering the empirical and normative dimensions of what is at stake in contemporary transformations of the state and its bureaucracy.

Expertise and hierarchy as sources of authority

A useful starting point for considering these concepts is John Scott's - not to be confused with James C. Scott - definition of authority as a form of power (J. Scott, 2001, 2008). Following Weber's emblematic distinction between hierarchy and expertise as sources of authority for 'rational rule'[3], Scott defines authority as a form of relational power between a principal and a subaltern, "where principals influence subalterns through persuasion rooted in the institutionalized commitments, loyalties, and trust that organize command and expertise" (J. Scott, 2008, p. 31). In this way, authority is distinguished from corrective forms of power such as coercion or manipulation in that authority is recognized as 'legitimate' by the subaltern.

To avoid confusion, it is worth noting here that the approach, I am developing here, is interested in authority as a sociological phenomenon, which means analyzing the social sources of legitimation of authority. This is different from the treatments of authority as labelled 'normative' in political theory which seeks to discover which forms of authority are normatively justified (see e.g. Haugaard, 2018 who sees authority as ruling out persuasion). The distinction between normative justifications for 'legitimate' sources of authority and the investigation of the operation of such authority is important because the former is not always made explicit. This is important because some models in public administration, like in other fields, tend to take up double roles as descriptive and normative guides that are important to identify and differentiate (Zacka, 2022).

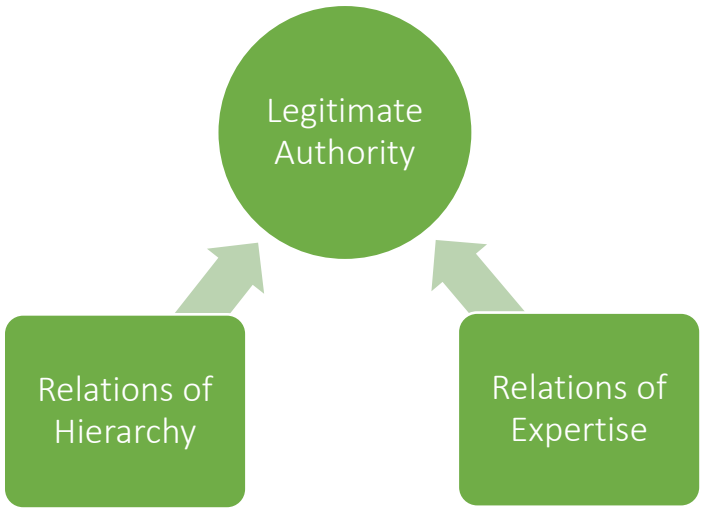
Scott's synthesizing theory of how the social sciences have studied authority, divides it in two basic categories, as relations of hierarchy or relations of expertise. Relations of hierarchy[4] are those where subalterns "willingly comply because they are committed to a belief in the legitimacy of a specific command and those who issue commands" (Scott 2008:32). Legitimacy exists when there is a belief that the pattern of domination is right, correct, justified or valid, which in liberal democracies depend on conceptions of democracy and legal rights. Relations of expertise are

[3] Rational rule is Webers ideal-typical image of the modern state. Weber's core concepts have structured most thinking on administration ever since. Weber identified three ideal-typical forms of legitimate rule: rational rule, traditional rule and charismatic rule (2019 (1921): 338ff). These forms of rule do not directly correspond the ways he thought individual actors can ascribe legitimate validity to an order. That is by virtue of tradition, by virtue of affective belief, by virtue of value-rational belief (certainty from knowledge) or by positive statue (formal-rational) (legal rule from agreement or legal order) (p. 115). Thus, the argument is not that citizens in modern states only ascribe legitimate authority to institutions or leaders through one process of belief in legitimation of order, but that multiple 'orders' can exist in society affecting the chance of particular social actions.

[4] Scott uses the term 'command' authority

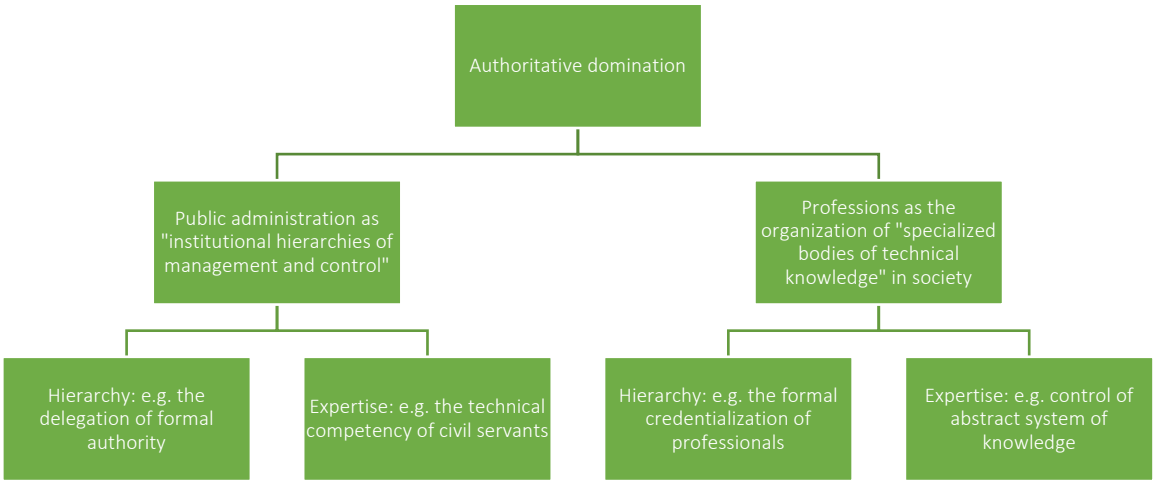
those where "knowledge that is monopolized by one group is accepted by others as a legitimate basis on which they can offer authoritative expert advice" (Scott 2008:32). Scott's further argument is that there are basically two ways these relationships have been approached in social scientific enquiry. The first approach focuses on the concrete exercise of power in relationships between principal and agent, while the second focuses on the enduring structural constraints that shape how these relationships are ordered. The first approach has decision-making powers in the state as paradigm and extends this to other kinds of 'sovereign' organizations. (e.g. Dahl's (1957) paradigmatic formulation that 'A has power over B to the extent to which A can get B to do something that B would not otherwise do'). In the second stream, it is the enduring structural constraints that shape the exercise of power, i.e. the relationships between A and B that is central. Foucault provided the most thorough elaboration of such an approach (although it is also present in Arendt, Parsons, Gramsci etc. and has inspired many approaches) seeing the discursive formation of power as operating, not least, through mechanisms of socialization and community building that constitute individuals as subjects. Thus, at the most basic level we can see the authority of public administrative bureaucracies as dependent on relations of hierarchy and expertise (see figure 1) that can operate on two levels. While these terms can be problematized, they provide a model frame on which to order extant research. To return to our concepts then, the concept of autonomy relates primarily to the issue of the delegation of authority through hierarchy and control, while the concept of expertise concerns the issue of authoritative knowledge.

Figure 1 – Simplest model of authority as a function of hierarchy and expertise



Scott saw this as a model for defining elite groups and their sources of power in society. Where coercion and inducement depends on the control of resources, such as financial and industrial assets, commanding and expert elites are defined by the symbols and social meanings they monopolize. In this perspective, expert elites are associated with professional structures and practices while commanding elites are associated with legitimate occupation of positions in institutional hierarchies of management and control. This division of elites corresponds to a division of research objects that have structured research in public administration and the sociology of professions (see figure 2). Using the model of 'fractals' (Abbott, 2001; Seabrooke & Tsingou, 2014), it is interesting to see how the basic distinctions between hierarchy and expertise repeat within each tradition, with some focusing mainly on questions of autonomy and control, and others on questions of expertise. The model thus helps to organize the literature, and how to understand the core concepts, but also reveals the great potential in thinking with them from an integrative perspective.

Figure 2: A fractal view of the study of authority in literatures on bureaucracy and profession



These distinctions are of course not absolute, and I am not the first to suggest cross-pollination. However, as I argue further in paper 4 of the thesis, theories of public administration dealing with bureaucratic authority, tend to see it as a function of legal authority through a (hierarchical)

delegation of power and technical authority from having the technical competencies to undertake complex tasks and issues. Essentially, they approach expertise, as forms of specialized knowledge and skills created exogenously to the political process, often in tandem with a view of experts or as unbiased and objective. On the other side, the systems of professions, dealing with the organization of knowledge in society, has historically conceptualized a professional jurisdiction as "control of work", based on some form of official recognition or credentialization from the state secured through the mobilization of an "abstract system of knowledge" in competition with other professional groups (Abbot 1988). This ecological approach to professions needs to be extended to account better for professionalism in the state, as I argue in paper 2. What this juxtaposition makes clear, is how these terms repeat at different levels of abstraction and that when we start considering professionalism or "specialized bodies of technical knowledge" in the state, or when we think of more distributed policy advisory systems (or governance), expertise remains an ever present and necessary element and we need conceptual tools for dealing with it.

Autonomy and control in public administration

Autonomy concerns the delegation of power through hierarchies, and is a key concept and question in research on public administration and professions. The concept of autonomy often operates on an implicit scale from full autonomy to full control. In public administration this is a multifaceted problem because it also tends to intersect with different ideals of democratic governance and scientific knowledge production, and ultimately, the appropriate level of 'discretion' or 'independence' of bureaucrats and professionals in terms of various standards of efficacy.

At its most general level, autonomy has been a problem of public administration ever since Weber (2019 (1921)) formulated the ideal typical image of bureaucratic neutrality and disinterestedness[5].

[5] Public administration is both an object of study and a field of research. For these reasons, discussion about the boundaries between what is and what is not 'public' administration, and the way to study it has had a long history. In terms of bounding the field, common definitions emphasize either a broad notion of 'governance' and 'government' (Raadschelders 1999: 288) or some form of 'public good' administration and provision (Fenwick & McMillan, 2014). While older public administration scholarship stressed concerns with stability and bureaucracy, recent developments have "fragmented" the field to focus on different specific issues; control-measures, division of administrative labor, bureaucracy-democracy relations, externalization, decentralization and distribution of state administrative functions (Bezes 2016).

Questions of arbitrariness, bias, nepotism, corruption, and capture, all reflect central concerns of autonomy understood as independence from illegitimate influences or special interests. Seen in this light, it concerns the distinction between legitimate authority and corrective forms of power that are seen as illegitimate influences on and operating through state power in democratic societies (see e.g. Winters, 2011).

In a more specific sense, autonomy has been key to studies focused on the civil service in its relation to the executive, legislative and judiciary elements of the state as a principal-agent problem. For example, autonomy as a problem of hierarchical control has been a central object of study in the literature on 'agencification'. This literature has studied the spread of independent agencies as a dominant form of organizing national public administrations, associated with the effects of New Public Management and Regulatory Capitalism. In this literature, the delegation of regulatory power to 'independent agencies' have been seen as vehicles of 'depoliticization' through their technical separation from the political system, and autonomy based on expertise and a specialization of tasks, enabling 'credible commitments' (T. Christensen & Lægreid, 2006; Majone, 1997). In the literature, much attention has been paid to analyzing the spread of agencies across sectors, and their degrees of managerial autonomy and political independence (Fernández-i-Marín et al., 2016; Jordana et al., 2011, 2018) or questioning their de facto or de jure autonomy after delegation (Maggetti, 2007).

This body of research can be understood in relation to a persistent view and norm of bureaucratic responsibility that can be dubbed the 'compliance model' (Zacka, 2022). The model, like the Weberian model has functioned both as a descriptive and normative model of public administration. The model presupposes that the major moral and political decisions about which ends to pursue, which values to prioritize and which constraints to respect are settled by the legislature and judiciary (ibid.). In this view, a main dilemma of administration is a principal-agent problem of the bureaucracy faithfully pursuing the ends decided in the legislature (parliament) subject to the constraints of the judiciary. As a descriptive model of how public administration operates the compliance model is misleading but has structured much thinking of public administration as ideally operating without independent agency. For example, the 'new public service' and 'public value governance' movements contends that public administration should be driven by 'public values' as ethos determined by the public, and that participatory ideals

of democratic legitimacy should guide how administration interacts with business and civil society (Bryson et al., 2014).

Historically, public administration has always consisted of independently circumscribed bodies with various responsibilities intended to isolate them from direct influence from the political system or special interests. The Nordics, unlike in the 'Napoleonic systems', have had a long tradition of semi-autonomous agencies. But the changes in governance and administration associated with reform programs inspired by 'New Public Management' and 'New Public Governance', programs of administration which were seen to increase efficiency without undermining control, have added new elements to the traditional "Weberian view of public administration based on the bureaucratic ethos" in the Nordics (Greve et al., 2018, p. 210).These management models have added complexity to the study of public administrative autonomy but have arguably also made the study of the supposedly empowered yet disciplined bureaucrats even more important.

Questions of autonomy and control of professionals has also been of central concern in research on professions in and outside public administration. This is particularly true when considering a few examples of how autonomy has been conceptualized in studies of professions as a historically dominant way of organizing knowledge work and its effects on regulation, or of the professionalism of occupational groups in public administration.

Outside the bureaucracy, as a historically dominant way of organizing knowledge work in society, professions[6] have been theorized as a particular social organization of knowledge to enable some kind of claim to authoritative expertise by exercising control over knowledge work in competition with other groups, secured in part through collective organizing and/or forms of government

[6] What matters here is not a definition of professionalism, but rather that the object of professions research has been to focus exactly on how claims to status and authoritative expertise are organized in society. The term profession functions as an analytical concept in the literature, while leaning on its common-sense roots. At its basics, the term "professional" originates in Anglo-Saxon countries and refers to particular occupational groups that may be distinguished from others (Macdonald, 1995/1999). In this regard, professions have been theorized both substantively and relatively. Substantively, as distinct from other expert occupations, the most-used definitions have considered key traits to be: the presence of professional associations, advanced training and education, an esoteric knowledge base, a service orientation and a code of ethics (Goode 1966; Greenwood 1957; Wilensky 1964). Relative definitions have been used to emphasize how professionalism is about how people determine who is a professional or not (Friedson 1983), as the 'degree of control of work'(Abbott 1988) or as the relatively wide definition that "in essence, professions are organized occupational groups with a (somewhat) accepted claim to legal and/or social status." (Adams, 2010, p. 54).

credentialization. In general though, definitions include some of the following elements; specialized work grounded in a recognized body of knowledge, exclusive jurisdictions, formal training programs and credentials controlled by occupation and providing a sheltered position in labor market, and some form of occupational ideology or value-system (Freidson, 2001, p. 127). Medicine and law functions as the classical archetypical professions, with organized self-rule at the very heart of ideal typical images of what it means to be 'a pure profession' (Freidson 2001). However, professions not only compete with each other but also with movements against 'strong' autonomy, for example seen with the rise of 'organizational professions' (M. S. Larsson, 1977). More generally though, the image of professions as an independent sphere of action separate from the state has always been most dominant in the American literature (Adams, 2015). For example, Fourcade, compares the Economics profession to show how in France it always was more connected to and subject to state control than in the US, and how over time, the US-American professional ideal has spread through transnational homogenization of the profession (Fourcade, 2006, 2009).

Despite, or perhaps because of, the ideal-typical image of professional autonomy, many studies of professions in the state have focused exactly on the question of autonomy and discretion as a consequence of administrative state reforms in the last 20-30 years. In the classical sociology of 'pure' professions these logics have been seen as fundamentally opposed in the struggle for occupational control (e.g. Freidson, 2001), where in the more 'situated' approaches to professions, professional work is understood to always take place in organizational contexts, seeing professionals as always handling multiple logics in establishing organizational control (e.g. M. S. Larsson, 1977). In response to the management reforms of the 90s and onwards discussed above, scholars have argued that self-regulation was perhaps never a common attribute of professions, and is now a relic of the past, and that 'discretion' is a more appropriate concern (Evetts, 2002).

Replacing questions of occupational control ('pure' professional control of content of work) and organizational control ('situated' professional discretionary control of organization of work), approaches to 'hybrid professionalism' have highlighted how an increasingly 'hybrid' professionalism dominate the public sector, revolving primarily around how to control professional work (see Noordegraaf, 2007, 2015). What these works highlight is that in the public sector, professionals always face opposing pressures of control between other (quasi-)professional groups, including managerial professions and political and administrative logics.

Similar/alternative theoretical arguments have highlighted the need to focus on the the boundary work by professional groups to establish 'proto-jurisdictions' that do not conform to the image of 'pure professionalism' of law and medicine (Blok et al., 2019). Overall, the strands of literatures in public administration and profession have tended to meet in research on bureaucratic professionalism which have noted the great similarities between bureaucracy and professionalism, by arguing that, bureaucracy is intrinsically connected with discretion, expertise, practical judgement and casuistical reasoning and that the the control-systems associated with 'New Public Management' and 'Neoliberalism' were in fact managerial and anti-bureaucratic (du Gay, 2020; du Gay & Pedersen, 2020). The nature of public administration ultimately allows for multiple disciplines to coexist, since bureaucratic expertise relies on both disciplinary and practical knowledge (Mangset & Asdal, 2019).

These studies emphasize the point made by Andrew Abbott, that the bureaucratic-professional distinction is not very helpful analytically because what matters with the contemporary (now and then) emergence of 'multiprofessional environments' such as "welfare bureaucracies, criminal courts, business consulting firms, ... illustrate less the contrast of bureaucratic and professional authority than the conflict between the many forms of professional authority" (Abbott 1988: 151). This underscores the necessity to understand the bases of competing expert claims to authority and control: expertise.

The question of autonomy is thus at the heart of concerns with legitimate authority, particularly in view of democratic and scientific principles of legitimacy. This is explored in the paper chapters. For example in paper 1 I look at the autonomy of civil servants vis-a-vis external actors and paper 4 problematizes how the notion of autonomy has traditionally been conceptualized in public administration. Here I investigate the role of public health agencies in systems of public health security: How much autonomy from the political system should public health institutions have in determining the level of threat and appropriate responses to pandemics? On the one hand it potentially withdraws the question of public health from political polarization, on the other it can make the system vulnerable to particular professional and ethical assumptions/preferences amongst those experts given authority.

Expertise in public administration

Expertise is the third important concept and is central for understanding regulatory structures and state–profession relations, and operates as a source of authority and change. Returning to Scott's distinctions between forms of power, there are many potential sources of influence and change in contemporary public administration, those of coercion and manipulation (e.g. the concept regulatory capture), those of hierarchy through the political system (often emphasized in 'front end' analyses of reforms or policy process), and finally those of expertise. Incorporating research from science and technology studies, an important finding in the sociology of professions and expertise, is the way science and expertise has acquired a more prominent role in politics and daily life, particularly in relation to the increased prevalence of 'regulatory sciences' that sit at the interface between science, which does not proscribe action, and politics, which does (Eyal, 2019; Jasanoff, 2004).

To make better sense of expertise and dominant approaches to its study, two distinctions are necessary. The first is to distinguish between expertise and science, and the second is to distinguish between expertise and experts. With his concepts of 'objectivist' and 'political' epistemologies in policy studies, Holger Strassheim provides a good framework for making the first distinction (Strassheim, 2015). 'Objectivist epistemologies' see the distinction between knowledge and values as not only desirable, but as an analytical objective, whereas 'political epistemologies' makes this very distinction the object of study. Thus, from the first perspective, erosion of expert authority calls for policy processes that works to monitor factual claims provided by experts and to evaluate them in terms of policy-principles that increasingly imitate scientific processes of knowledge production[7]. While such a normative goal can be seen as desirable, it tends to overlook the social processes of authoritative claim-making in society and may thus end up promoting some groups or agendas that are more easily or successfully presented as factual, rational, or scientific. 'Political epistemologies' explicitly aim at revealing the interaction and mutual constitution of knowledge and values, and thus seeks to delineate concepts of science and expertise from each other to enable the study of how claims to authority through expertise are made.

[7] Strassheim equates this position with the 'policy analysis movement' and later the approaches to 'evidence-based' and 'evidence-informed' movements, relying on the belief that sound science will lead to a more rational problem-solving process or policy learning (see e.g. Howlett 2009 in Strassheim 2015).

It is worth noting that this distinction between two general approaches to the study of expertise are present in both literatures. In the sociology of professions and expertise, for example, a 'substantivist' position is most often associated with Collins and Evans' analyses of expertise as a set of skills and knowhow possessed by experts (H. Collins & Evans, 2008b; H. M. Collins & Evans, 2002). Here the goal is to establish objective markers of knowledge to distinguish expert from non-expert claims. Oppositely, 'relational' approaches makes these markers their objective, by focusing on expertise as a quality attributed to experts by other social actors (Abbott, 1988; Eyal, 2013; Eyal & Pok, 2015; Liu, 2013)[8].

As I argue further in paper four, we can observe a more widespread 'objectivist' approach to expertise in public administration scholarship, leading to somewhat limited perspective expertise as technical expertise separated from values and ethical assumptions, resulting from a preoccupation with questions of autonomy. In this sense, the thesis places itself in the slipstream of recent theoretical developments that have sought to highlight the moral, political, and 'co-produced' underpinnings of technical knowledge in regulatory processes (Hesstvedt & Christensen, 2021; Lewallen, 2020; Slayton & Clark-Ginsberg, 2018). These insights have yet to be integrated into an analytical approach to the study of regulatory authority

Some of the ideas from more relational approaches to expertise have found their way into the Policy Advisory Systems literature (Krick et al., 2019). The literature has historically focused less on the 'content' of expertise, but recent theoretical developments , the 'second wave' of PAS, has transposed the framework in crucial ways to better incorporate the 'context' and 'content' of expertise (Manwaring, 2019), and paper 1 extends this. For example, Christensen (2018) has observed an increasing 'scientization' of policy advice, that is, a growing reliance on academic sources of expertise in public policy. His study of the increased access of academic economists to Norwegian advisory commissions, show this transformation in corporatist systems. While corporatists systems with consensus or compromise-based policymaking styles, such as in northern Europe, have often been more open to external policy advice, this has mostly been in the

[8] I treat these distinction mostly as different epistemological approaches to the operation of expertise in society. For discussions of the ontological stakes involved, see for example discussions around "the third wave in science studies" (H. M. Collins & Evans, 2002; Jasanoff, 2003) and more recent debates on the position of STS in "post-truth" societies (H. Collins et al., 2017).

form of including organized interests in governmental advisory bodies (Hustedt, 2019; van den Berg et al., 2019b). Another example is the 'consultocracy' literature, highlighting the effects stemming from increased reliance on consultancies as sources of expertise (Ylönen & Kuusela, 2019; Gunter et al., 2015; see also Seabrooke & Sending, 2022). Overall, diagnoses such as 'scientization' or 'consultocracy' point to the important transformative effects of changing sources of expertise on policy advice, while not being explicitly politicized as being partisan.

The second important distinction is between experts and expertise, which an important contribution in the professions and expertise literature. By calling for, and defining a sociology of expertise complementary to the sociology of professions, Gil Eyal, actively draws on the literature in science and technology to introduce a more descriptive account of how different claims to knowledge are constructed (Eyal, 2013; Eyal & Pok, 2015). The point is that approaching experts and expertise simultaneously gives a more complete understanding of expert authority. This is not to suggest that the literature forms a coherent set of analytical approaches, as I discuss further in paper two.

Andrew Abbot famously (re)formulated the study of professions, to focus on professions as groups of experts that sought to exert control over 'locations' of expert work in society, what he called jurisdictions, and engaged in continuous competition and cooperation to control these locations. In this 'ecological tradition', ecologies conjure a topological image of social space as consisting of locations and actors and links between the two (Abbott, 1988, 2005). His critique of other traditions was that they overemphasized "form", that is formal markers of belonging to a profession; credentials, association membership, education, rather than the content of professional work, "ignoring who was doing what to whom" (Abbott, 1988, p. 1). Central to this understanding of expert competition is that the ability of professions to exert legitimate control over work depended on their monopoly of 'abstract bodies of knowledge'. Essentially, the ultimate source of professional authority comes from the level of monopoly and control over particular knowledge systems. Thus, expertise in this view is a source of competitive power for experts, and Abbott argued that the ability of professions to maintain their role in society over longer periods of time depended on an optimum level of abstraction, as well as being able to accomplish tasks better and faster than others, essentially from their combination of abstract and practical knowledge.

Eyals sought to complete the reorientation of the sociology of professions that he sees as inherent in Abbot's approach, namely that of taking "expertise" itself seriously, without reducing it to the positions and interests of the actors mobilizing it. This position implies that most, though not all, studies of professions has had an analytical tendency to focus primarily on the experts – actors who make claims to authoritative expertise - reducing expertise to the "interests and world-views of the experts" with interests being the continual control and monopoly over a given tasks linked to positions in a system, ecology or field (Eyal & Pok, 2011). Although this interpretation of the literature has been contested (Liu, 2018, 2021), Eyal, has helped by expounding expertise as a separate analytical sensibility. All this is to say, that seeing expertise as distinct from experts, draws attention to all the things that must be in place for experts to claim authority and do their tasks well, bringing us closer to the second understanding of authoritative power that Scott introduced. Indeed, Eyal draws exactly on actor-network conceptions of the material and non-human agents (i.e. material structure) that matter for and structure discursive networks, seeking to treat expertise as "everything that is necessary to take into account when one seeks to give a description of the capacity to accomplish a relevant task, that is, of everything that is necessary in order for a particular expert statement or performance to be produced, repeated, and disseminated" (Eyal, 2015). In this conception, the authoritative power of expertise can come not only from monopoly and control, but from generosity and co-production (Eyal and Pok 2015).

More generally, Eyals work has shown how expertise and experts interacted in the state (and non-state) institutional matrix for dealing with development disorders of childhood, to influence the prevalence and meaning of autism diagnoses over time. That is to say, that the growth in autism rates should not be understood as an 'epidemic' or not, driven by naturalistic phenomena, rather, it correlates with the 'institutional matrix' of childhood disorders as neither mental illness nor mental retardation but somewhere in between (Eyal et al., 2010). We have thus come full circle to see the interrelatedness of claims to expertise, institutionalization of that expertise in public administrative systems of control and treatment, and definitions of policy-problems.

1.3 Research question

We are faced with a situation in contemporary public administration with layered administrative reforms and transnational dynamics that point towards: More regulatory power in public administration and advisory systems at the cost of legislative bodies. Increased decentralization

of the administrative system with more distributed systems of actors involved in diagnosis of policy problems and implementation, particularly in the forms of consultants and academics. These dynamics also transform/challenge professional and bureaucratic norms and autonomy within the public sector. What the preceding discussion and overview has illustrated is that what is at is at stake in these transformations is *who has authority* and *how that authority is legitimated through hierarchy and expertise*, and *what drives changes in authority at the meso-level across the politico-administration system*. The thesis takes as point of departure that such dynamics must be understood in relation to the organization of professional authority and forms of expertise that characterize given jurisdictional arenas, and that these must be investigated in relationship with bureaucratic expertise and advisory structures.

Building on this overall understanding, the thesis investigates the transformations of policy advisory systems and public administrations in Sweden, Norway and Denmark. It asks:

> How do interactions between public administrative systems and systems of professions and expertise shape regulatory governance?

While several factors impinge on this question, as discussed in the preceding section, the thesis' main contribution is to show how professional and expert dynamics drive change in public administration, how these changes intersect with managerial and scientific logics, and how the sociology of professions can support theory in public administration and may in turn benefit from engaging more with the relations of hierarchy that structure public administration. Conceptually, the goal is to advance a Comparative Sociology of Administration by drawing on Policy Advisory Systems (Craft & Wilder, 2017; Howlett, 2019) and the Sociology of Professions and Expertise (Abbott, 1988; Eyal, 2019).

The thesis is organized around two main axes of comparison which I explain further in the next section. The first is a cross-jurisdictional comparison between two cases of professional arenas: behavioral change and public health security. This comparative axis operates at the level of the thesis as a whole and serves as the basis for conceptual development. The second axis of comparison is cross-national. Here, public-administrative, and expert systems are compared between Denmark, Norway and Sweden. This serves different purposes in each paper, but generally is understood as a way to constrain variability to a manageable range of factors. The

Nordic welfare states have similar although not identical political and public administrative traditions, universal welfare systems and financial resources. Despite these similarities, the two arenas under consideration have diverged because of factors in the politico-administrative and expert system. Each chapter in the thesis juxtaposes perspectives from public administration and the sociology of professions and expertise to improve insights and theory in relation to empirical data and contemporary developments.

With authority, autonomy and expertise as guiding concepts, the individual papers ask the following sub questions:

Table 1 – The sub questions and their relation to jurisdictional arenas and key concepts

Papers and Sub questions	Jurisdictional Arena	Authority	Autonomy	Expertise
Paper 1: What is the role of civil servants vis-à-vis external actors in establishing new expertise in the public sector?	Behavioral change		x	x
Paper 2: How does the overall strength of a field of expertise depend on connective and protective strategies linking across public administration, university and professional ecologies?	Behavioral change	x		x
Paper 3: How do the beliefs of experts in academia, public administration and other expert organizations influence their policy preferences and responses?	Public Health Security			x
Paper 4: How does the authority and configuration of public agencies depend on developments in the expert system	Public Health security	x	x	x

Thus in the next section I present the overall comparative framework and empirical material supporting this effort, followed by a presentation of the main findings and contributions of the thesis following on from the papers. One of the main contributions of the thesis overall is to establish a comparative framework for comparing areas of expertise and their dynamics in public administration. It will thus, hopefully, be of interest to readers in the Sociology of Professions and Expertise and Public Administration, as well as scholars of Behavioral Insights and Public Health Security.

1.4 Analytical framework and design

Some overarching analytical considerations shape the empirical approach. First and foremost, drawing the work on professions into the study of public administration, this thesis is focused on task domains impinging on public policy and administration. Translated into the context of public administration, the root heuristic is to think of the dynamics of expert competition as revolving around how to professionally diagnose and treat policy problems. Thus, while all chapters juxtapose theories from public administration and the sociology of professions and expertise, they all draw on a 'topological' heuristic of social space as consisting of locations and actors that engage in strategic action to move across create links between themselves and locations. Thus, rather than locating tasks primarily in the professional ecology, as in the sociology of profession, the thesis focuses on tasks located in two interpenetrating systems: a politico-administrative and an expert system. Experts and expertise are unevenly distributed across these ecological systems, in which claims to authority are made, which are shaped by collaboration, competition and context.

This approach takes different forms in the different chapters, but on a basic level, the foundations of the approach sees experts and bureaucrats in different public administration as 'multiple insiders' (Vedres & Stark 2010) through shared membership and participation in politico-administrative and expert systems (Abbott 2005). These multiple attachments confer on the experts both profession-specific logics requiring technical and moral knowledge, but also bureaucratic logics from occupying an office with instituted official purposes and obligations (Perrow 2014 in du Gay and Pedersen 2020). For example, public health officials must defend task- and claims-making technically and morally within expert and professional communities, and the offices of governments as well as the wider public. However, the identity of being a multiple insider may also create conflictual reasoning and value conflicts among agency experts as

professional and bureaucratic logics do not always align (Kearney & Sinha 1988). This is not to say that ideal-typical distinctions of being 'inside' and 'outside' the state is not relevant, but it is an attempt to break down notions that 'expertise' and 'professionalism' are sources of knowledge and skill created and existing exogenously to political processes and public administration.

As I explain later, and as is apparent in the different chapters of the thesis, I draw on existing research in public administration, and specifically on policy advisory systems and the regulatory state, to identify important explanatory factors in the politico-administrative system. I use the concept of 'expert system', to refer to the relevant expert actors in and across the academic, professional and market fields. I develop this concept further in article 2, where I propose to think of it as an 'expert ecology' as shorthand for the configuration of interfaces between social spaces involving expert claims by drawing on Sida Lius work on ecological distance. This approach integrates concepts of 'interstitial field' (Eyal 2013), 'linked ecologies' (Abbott 2005) and 'overlapping ecologies' (Liu, 2018) as discreet measures of distance between social spaces. Other chapters, such as papers one and four, are situated more squarely in the public administrative literature, and therefore draw more stylized insights from the professions literature into building indicators.

These heuristics are also important for the way the comparative elements of the thesis are organized. First, I draw on the image of the expert jurisdiction to compare the two cases of behavioral change and public health security. The second axis of comparison is cross-national.

Cross-jurisdictional comparison between jurisdictional arenas

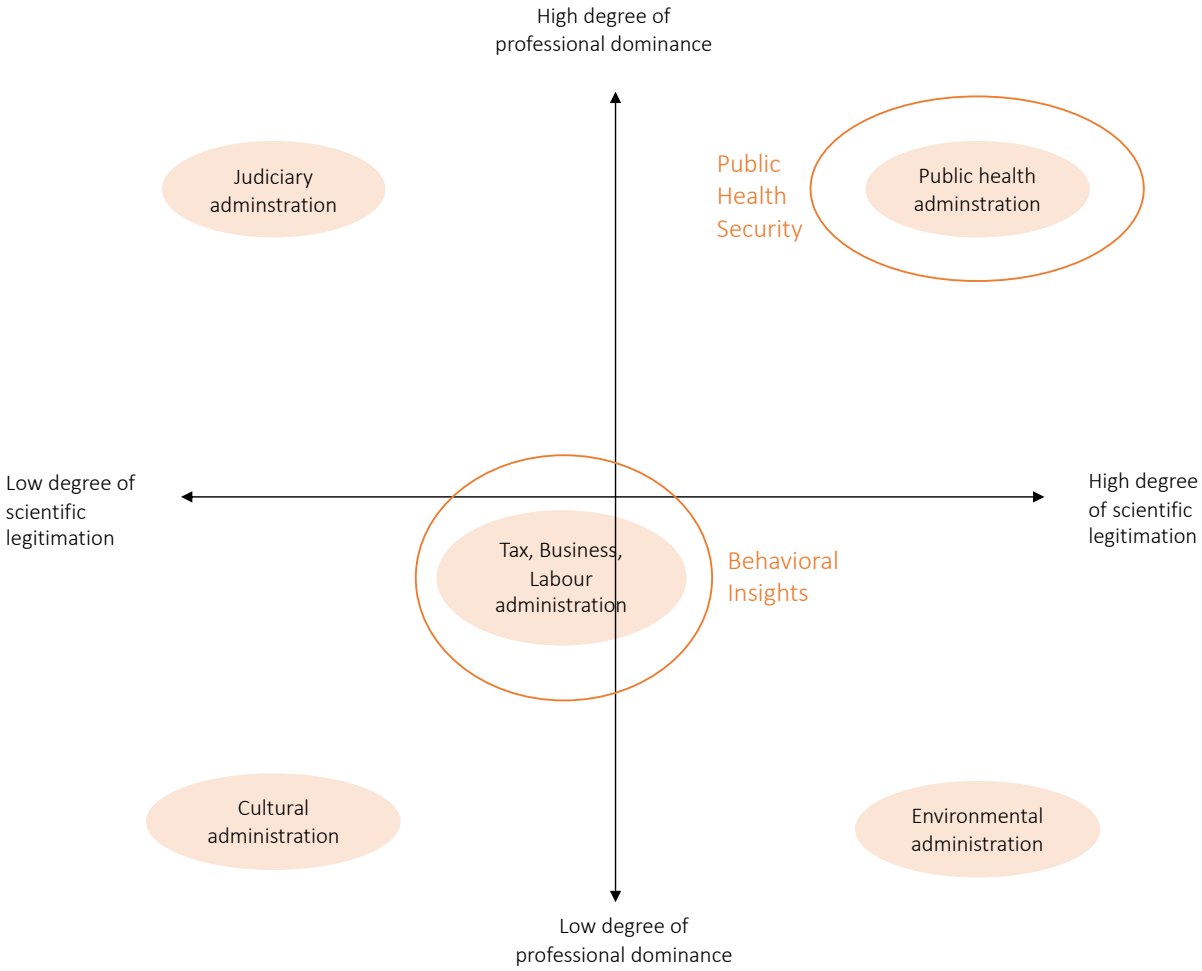
The first axis of comparison, I call 'cross-jurisdictional', building on the proposal by Anders Blok to outline new research agendas for the field of sociology of professions (Blok, 2020). It refers to the central concept of 'jurisdiction', defined as the degree of control by professional groups over specific work tasks, which was touted by Andrew Abbot as the central explanatory aim of sociology of profession (1988, 2005). Such jurisdictions where to be studies in 'ecologies' where competition and cooperation between professional groups should always be understood with reference to a wider 'environment' of other ecologies. Shifts in one ecology would have ramifications in another. Thus, cross-jurisdictional comparison aims to compare the dynamics of

inter-professional competition and collaboration around sets of existing or emerging task domains.

Cross-jurisdictional comparison was arguably initiated by Abbot himself, and has been pursued most recently by Blok and colleagues, in their comparison of the 'task domains' around water-based climate adaptation, lifestyle disease prevention, and innovation management in Denmark (Blok et al., 2018, 2019). The recent interest in the term has come about in conversation with similar approaches within the other 'topological' approach to social space namely field theory (Krause, 2018). As these attempts have revealed, there is an inherent tension in attempts to formalize dimensions of variations within research traditions committed to thick descriptions of social relations and processes (Blok, 2020; see also Liu & Emirbayer, 2016 for a discussion of the differences between field and ecology)

Albeit there the differences between Behavioral Insights and Public Health Security are multidimensional, I find two dimensions illuminating to distinguish between the areas of public administration on which they impinge. These dimensions are very general and I explain the reasoning behind them below. The first dimension is the degree to which one or few professions dominates and shapes the task space and policy area of the administration. The second dimension is the degree to which professionals in the area of administration ultimately rely on scientific authority to legitimate practices. Where Behavioral Insights has found application in areas of administration with median levels of scientific legitimation and lower levels of professional jurisdictional control by one profession, 'All hazards security' impinges on the highly scientized area of public health, with strong jurisdictional claims to authority (see figure 1). While the locations of the professional projects in this figure are based on the empirical analysis in papers, the relative positions of areas of public administration have the character of propositions, and as such, are open to discussion and future investigation. Furthermore, these are generalized positions that do not look identical in each national context.

Figure 3: Map of organizations in politico-administrative system based on professional characteristics of bureaucratic expertise



The first dimension is conceived from the concept of jurisdictional control in the professions literature. Jurisdictional control is a central aspect of the sociology of professions (Abbot 1988) and reflects the degree to which a professional group can either *conduct* or *control the content of particular sets of expert tasks*. The sociology of professions literature alerts us to how we can see experts and professionals, regardless of their institutional affiliation as engaged in struggles for legitimacy and jurisdictional control in the competition for expert work (Abbott, 1988; Eyal, 2013), but discussions of control that can equally be extended to the public domain (Noordegraaf,

2007). However, it is important to keep in mind that in this domain, as in many contemporary professional settings, hierarchy is also very important for how work is organized.

While the nature of public administration ultimately allows for multiple professions and disciplines to coexist, since bureaucratic expertise relies on both disciplinary and practical knowledge and crucially operates through writing (Mangset & Asdal, 2019), different policy areas of public administration can be seen as defined in relation to more or less dominant professional logics. While public administration was historically dominated by legally trained bureaucrats, multiple studies have explored the rising importance of economists (see e.g. J. Christensen, 2017; Hirschman & Berman, 2014), while in some sense overlooking similar the importance of other groups (for exampel the under-studied and under-theorized profession of political science). However, the intention here is to purport that some areas of public administration are more homogenously dominated by fewer professions than others. For example, public health and justice stand out at policy areas where agencies and ministries remain closely connected to, staffed by and influenced by few types of professionals and their organizations. This is not to forget that the public sector is also characterized by other relations of authority that are not aligned with professional influence.

The degree scientific legitimation functions as a second differentiating axis. What is taken as a starting point here is that different areas of administration have relied on different professional histories of knowledge production to legitimize bureaucratic expertise. One way to approach this dimension is the traditional distinction in professions studies between ‘normative’ and ‘scientific’ professions which referred to their ultimate basis of abstract knowledge (Halliday 1985). The distinction between two sources of ultimate professional authority, with an intermediate set of ‘syncretic’ professions, implies a continuous scale of abstract bases of professional knowledge from a low to a high degree of scientific legitimation. This scale does not reflect daily routines of professional work, but how expertise is ultimately justified.

It is important to highlight the limitation of the concept in public administration. As studies of regulatory science show, science operates as a major legitimizing force, and becomes blurred in the interface with regulation. Where regulation actively shapes expert knowledge and practices, and conversely, expert knowledge and practices shape regulation, the boundary between science, which does not proscribe action, and politics, which does, is unstable (Eyal, 2019; Jasanoff, 2004).

When operating in this context, expertise is not just 'truth claims' but also claims to optimal futures and outcomes. Here the organization of administration interfaces with different 'civic epistemologies' and entail the risk of becoming 'policy-based evidence' (Strassheim & Kettunen, 2014).

A different perspective on the same axis would be to draw further on the literature of STS. Here the notion of 'abstract knowledge' is substituted with chains of translation as the basis on which various knowledge claims rest (see Latour, 1987, 2010; Latour & Woolgar, 1979). This body of literature distinguishes between 'scientific', 'legal' and other forms of abstraction, referring to the chains of abstraction necessary to produce secure knowledge. While scientific knowledge implies a fully two way chain of translation and inscription going from laboratory to report and back-again (immobile mobiles), forms of legal reasoning a more unidirectional and flow from the authority of previous legal texts. Without going into more detail here, this view of qualitatively different forms of abstraction upsets the interpretation of the axis as a continuous variable. Rather, by implication, different areas of expert knowledge have qualitatively different ways of producing authoritative knowledge.

These are but two ways to distinguish between areas of central governmental organization. It can be interpreted as a distributional map of public administrative units comparable with terms such as 'country-sectors', a unit of analysis in the regulatory state literature (Jordana et al., 2018) or 'policy subsystems' in the policy-advisory systems literature (Craft & Wilder, 2017; Weible, 2008), although these terms are not fully interoperable between themselves or between the notion of 'policy task'.

Cross-national comparison and transnationalism

In a second operation, the project compares the transformations of bureaucratic expertise and advisory structures around these professional projects in three 'most similar' countries, Denmark, Norway, and Sweden. The countries are similarly located in Northern Europe, sharing linguistic, cultural, and political characteristics. They are all Social Democratic welfare states with universal health care (Esping-Andersen 2015) and wealthy coordinated market economies (Hall & Soskice, 2001), although with some important differences in the organization of different aspects of public administration that are discussed where relevant.

Thus, the second comparative axis of the thesis is cross-national, although the units of analysis varies between chapters, and are primarily focused on jurisdictional ecologies rather than 'states' themselves. However, each chapter places the public administration, often in the form of regulatory agencies, at the center of analysis. Thus the 'environment' of each analysis is often nationally defined and compared. This is important because the sociology of professions tells us that professions historically emerged in specific national and regional contexts, but that the trends that impact them are increasingly transnational (Faulconbridge and Muzio, 2012; Suddaby et al., 2007). However, while we know that the organization of knowledge follows national trajectories, there is a dearth of comparative studies (Adams 2015).

The table below shows the distribution of the four papers across the cross-national and cross-jurisdictional axes. As can be seen, each set of papers (1-2 and 3-4) compares within each jurisdiction, but at different levels of analysis. Paper one compares four agencies within a national context, while paper two compares BI developments across politico-administrative and expert systems between countries. Paper three primarily focuses on comparing the expert system of public health security across national politico-administrative systems, and paper four compares the changing authority of Public Health Agencies on Public Health Security in three politico-administrative systems.

Table 2 - Thesis paper distribution along the two comparative axes of professional projects and national systems

<table>
<tr><th colspan="3">Behavioral Insights</th><th colspan="3">Health Security</th></tr>
<tr><td>Denmark</td><td>Norway</td><td>Sweden</td><td>Denmark</td><td>Norway</td><td>Sweden</td></tr>
<tr><td colspan="2">Paper 1: Comparison across Danish agencies of key factors in politico-administrative system responsible for developing BI expertise.</td><td></td><td colspan="3">Paper 3:

Comparison of national public health security expert populations across politico-administrative and expert system.</td></tr>
<tr><td colspan="3">Paper 2: Comparative study of BI development in politico-administrative and expert system in historical perspective</td><td colspan="3">Paper 4: Comparative study of politico-administrative and expert developments on public health security in historical perspective</td></tr>
</table>

By insisting on placing national public administrations at the center of analysis, the approach advanced here could be accused of reproducing a form of methodological nationalism. Methodological nationalism is used as a critique of methodological approaches where the state is treated as the locus of power and authority and thus the primary analytical unit for academic analysis (Stone, 2019). Diane stone argues that ”when addressed by policy scholars, the foci of much policy scholarship has been to address the impact of transnational dynamics on domestic politics … rather than to see the locus of policy power and implementing authority within transnational dynamics.” (ibid.). While this is definitely the case, and important work is done by recentering analysis the transnational professional dynamics (see for example Seabrooke, 2014; Seabrooke & Tsingou, 2014), there is also a case to be made for continued attention to how these transnational dynamics feed into and impact national regulatory and expert systems. The approach advanced here is open to transnational dynamics and how they rework ‘national contexts’ (to quote Blok et al., 2019), but also show the continued relevance of national actors and hierarchies to understand processes of change.

In this comparative perspective, Behavioral Insights and health security are both examples of transnational forms of expertise and regulatory ideas, that depend on the existing configurations of national institutions, bureaucratic expertise, and advisory structures, while also transforming them.

1.5 Methods and Data

The papers that make up this thesis have come about in a period of great disruption and opportunity. Initial data collection in Denmark began in late 2019, as part of a broader investigation of and attempt to 'quantify' the Danish Policy Advisory System and the professional composition of the central administration as basis for international comparison[9]. In this initial design, 'Behavioral Insight' was chosen as a case study of the distribution of policy advice across the public-private divide. With the spread of the Covid-19 pandemic in 2020 through 2022, the Nordic governments instituted various stages of lockdowns, not least of the public bureaucracies. These lockdowns and the associated change in priorities of much of the central administration meant that the plans I had for data collection were partially upset, with many civil servants directed at more urgent emergency response tasks and several projects put on hold. At the same time, it was also a great opportunity for studying expertise and transformations the politico-administration system in action, as the initial responses in Denmark, Norway and Sweden revealed interesting divergences and clear ethical challenges at the level of administrative regulators. Taking advantage of this opportunity led to a reorientation of the project from intra-national comparison to also include international and cross-jurisdictional comparison. Together with Søren Lund Frandsen and with financial support from the Nordic Sociological Association, we collected present and historical data on Public Health Security from 2020 to 2021 with the research assistance of Anne Mosegaard Gravholt. In 2021 I also resumed data collection on Behavioral Insights to complete the final aspect of comparison.

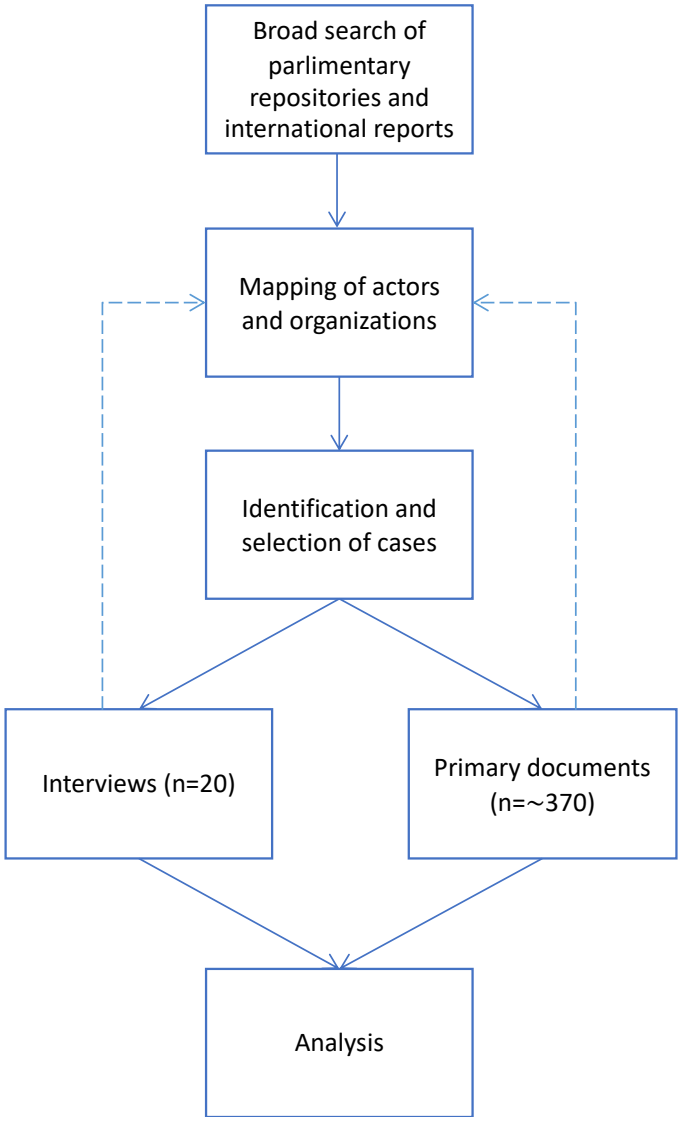
[9] Like research in Sweden and other countries in Europe have revealed, the danish public administration has uncertain and superficial data on the use of external consultants (and academics) (DI, 2019; Løhde, 2019; van den Berg et al., 2019c, 2019a) which only became a political priority to improve from 2019 onwards while I was planning my initial fieldwork and data collection. Furthermore, data on the professional composition of the danish central administration is also not generally available. For this reason studies have primarily focused on the collective agreements of civil servants ('DJØF' membership) (Dahler-Larsen et al., 2011) or surveys of the leadership in municipal (Klausen, 2018) or state organisations (Krarup, 2012). This makes a case-approach more appropriate.

This means that all papers are connected by a common set of analytical sensibilities from the sociology of expertise and professions and an empirical focus on questions of public administration and regulation, but with varying research strategies reflecting the availability of existing data and the drivers of change in each jurisdictional arena. Two aspects of this sensibility are key. First is the understanding of mapping and being attentive to actors, connections, and context in three broad ecologies: the university, the professional/private sphere and the politico-administrative one. In both arenas this is done through an iterative design from a general mapping to refining and selection of cases, informants and documents which in turn are used to enrich and expand the initial mapping through snowballing and boundary setting. Second is the consistent attention to both the content of 'expertise' in the form of logics, assumptions and preferences, and the 'expert' actors and their historical movements and strategic actions across ecologies. Not all these data and analyses have found a place in the empirical elements of the four papers.

Data collection on Behavioral Insights

Paper one and two build on interviews and meetings with 17 strategically selected interviewees in and outside the politico-administrative ecology in combination with primary textual material in the form of collected internal and public reports as well as a contextual mapping of relevant ecological and political transformations. While the comparison in paper one is structured internally in Denmark with 10 interviews, paper 2 compares between Denmark, Norway and Sweden. Each country followed the data collection strategy below.

Figure 4 – Data collection strategy BI



Public agencies, consultancies and research institutions were identified by a thorough search of governmental reports and webpages containing reference to BI, existing enumerating reports (World Bank Group, 2019), interviewee snowballing and through primary documents of public projects at the national level with references to 'nudging' or 'behavioral insights'[10]. I have gathered and read all publicly available reports on behavioral insights at government and

[10] In all countries I searched the government and parliamentary registries for reports as well as the public online registries of each identified agency. Apart from the English search term 'nudg*' or 'nudging', for each country I translated to specific terms. In Denmark: 'adfærdsøkonomi', 'adfærdsindsigt*', in Norway: 'dulting', 'dulte', 'kontrollerte forsøk', 'atferdsøkonomi', 'atferd*', in Sweden: 'puff', 'beteendeinsatser', 'beteendeekonomi'.

parliamentary level, identified all central-administrative units or agencies with either single projects or long-term units and gathered all available data. It thus constitutes a population mapping of public organisations and their partners.

It is difficult, in practice and in theory to clearly define the characteristics of a "BI Team", and only focusing on them would be to fall for a 'Behavioural Insights Team Bias' (Sunstein, 2014). Institutionally this is because of "a wide range of models for integrating BI into the daily work of public administration" (OECD, 2017). But equally because of the hybrid nature of BI as a (proto-)profession drawing together sub-disciplines from the 'behavioral sciences', particularly Economics, Psychology, and Neuroscience, which means that the very meaning of BI is at stake the boundary work in public administration between different specialists. Here I have used a minimalist definition of presence, as cases where one or more civil servant explicitly work with BI on a regular basis, combined with an organizational awareness of a 'behavioral model'. This means that the number of civil servants 'inspired by' insights from behavioral science and its discursive effects are here assessed at a minimum.

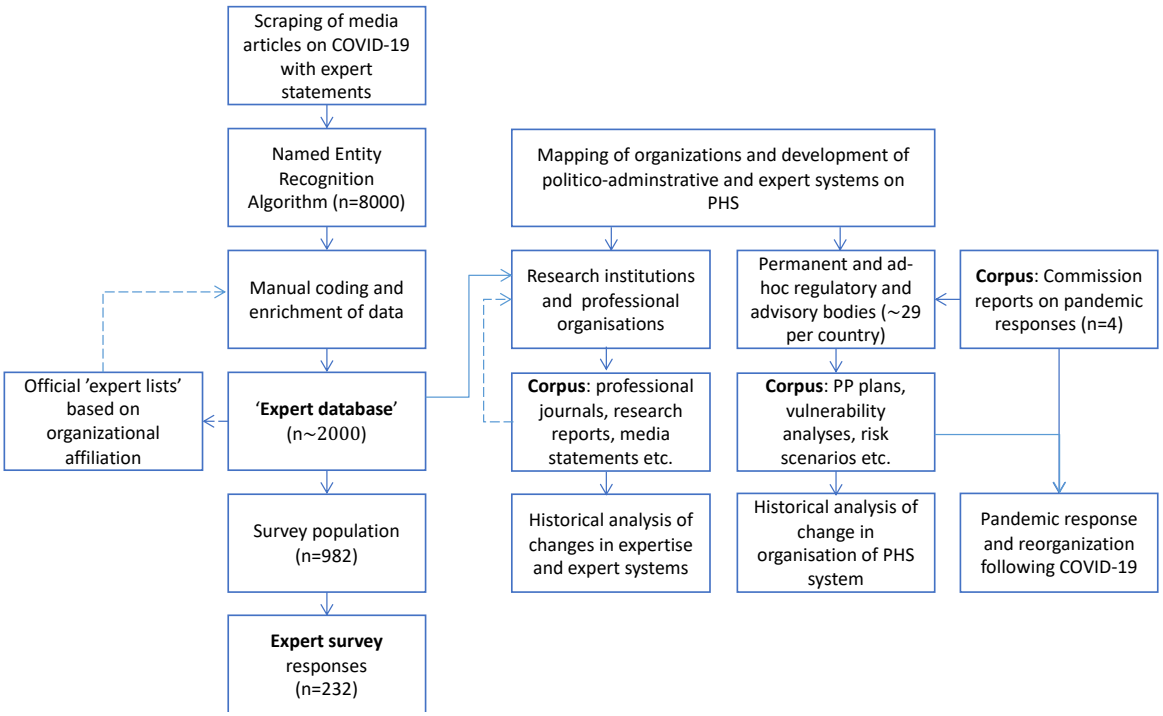
I contacted respondents by either locating them by name in reports or by contacting the public agency and being referred. While data for Denmark was primarily collected in late 2019 and early 2020, data for Sweden and Norway was collected in late 2021 and early 2022. For each country I interviewed civil servants in every key public institution I could identify as well as central experts outside of it. Interviews lasted between 1-2 hours and were often preceded by a background interview of equal length or an email correspondence.

As I mention in both papers, this approach has some limitations. The first is confirmation sampling. I have only had access to successful BI projects and overtures, and public organizations like private are less likely to publish or mention failed experiments or initiatives. Second, there is limited data on 'behavioral scientists' professional careers (prosopography) and the distribution of social science professions and careers in nordic public administrations (see footnote above). This makes it hard to compare BI experiences with other professionalization projects. Finally, the interconnections between state, professional and university ecologies are hard to monitor when they happen below a certain monetary or informal threshold. This makes the method potentially vulnerable to confounding variables of status and power, if practiced without due reflexivity.

Data collection on Public Health Security

Paper three and four rely on a larger set of sources, since they analyze change in an older and more institutionalized system. Paper three investigates to what degree national differences in COVID-19 policy response reflect significant differences in the policy preferences of national expert groups. It relies on an expert survey with public health experts (n=232) based on an expert database built by scraping new articles for expert names from across the expert ecology: universities, hospitals, public administration and particularly the national pandemic preparedness systems. It also builds on a structured case comparison of pandemic responses in the three countries.

Figure 5 – data collection strategy Public Health Security



Paper four relies on data mapping the organizations and experts relevant to the organization of Public Health Security, organized in three corpora. What is central to the analysis is that developments in security expertise in all countries become central to how PHS systems are organized and change. Therefore, the analysis is extended beyond the public health experts surveyed in paper 1. The first corpora extend from a mapping of the research institutions and professional organizations in public health and security studies and how they mention and respond to the notions of 'all hazards preparedness' and 'pandemic preparedness'. The second corpora

come from the central organizations charged with public health security, and makes it possible to trace how these terms make their way into pandemic preparedness places, risk analyses etc., and how the PHS systems are reorganized (or not) in the past 20 years. The final corpora is made up of the reports from the national commissions that were set up to investigate the processes and decisions of national PHS systems during the pandemic. Together with the second corpus it is used to compare pandemic responses, changes in law and changes in organizations. Together, these sources allow an analysis of the changing authority of public health agencies vis-à-vis pandemic responses in the three countries under consideration.

Table 3 (next) gives an overview of the four papers that make up the thesis, their aim, data, analysis and publication status.

Table 3 – Papers and publication status

#	Aim	Data	Analysis	Publication status
1	Investigates the the role of civil servants vis-à-vis external actors in establishing new expertise in the public sector, by focusing Behavioral Insights as new administrative expertise in the Danish Public sector.	1) Mapping of all BI organizations in Denmark. 2) Comparative study of four agencies working with behavioral insights in the Danish Central administration. 3) Interviews (n=10) with civil servants and key partners, and administrative documents, published and internal (~138).	It first focuses on the relevant politico-administrative and policy transformations over a 20-year period that provide the context for embedding BI work in the public sector. It then compares the roles played by external advisors in facilitating BI policy ideas and diffusing BI forms of expertise.	Published in *Public Administration*
2	Investigates how the overall strength of a professional project depend on connective and protective strategies, focusing on the strategies of Behavioralists, and their relative importance in relation to other 'environmental' factors to explain the success of Behavioral Insights in Public Policy.	1) Mapping of all public administration organizations utilizing BI, as well as the professional networks, consultancies and research institutions related to these. 2) Comparative study of national expert ecologies 3) Interviews (n=17) with civil servants and key partners, and administrative documents, published and internal (~370).	The paper compares the process of establishing 'Behavioral Insights' across public administrations and expert environments in Sweden, Norway and Denmark.	Working paper aimed at *Journal of Professions and Organization*
3	Investigates how the beliefs of experts across academia, public administration and expert organizations influence policy preferences and responses. It does so by focusing on the organization of public health security and policy responses during the first wave of the COVID-19 pandemic in Denmark, Norway and Sweden.	1)Expert survey of public health experts (n=232) 2) Structured case comparison of PHS systems and policy responses during the first wave of the COVID-19 pandemic.	Structured case comparison Regression analysis	Published in *Globalization and Health*
4	Comparing the pre- and post-pandemic processes of changing 'knowledge mandates' of health authorities in Denmark, Norway and Sweden on the issue of public health security, the paper looks at the bureaucratic and epistemic sources of authority available to agencies.	Comparative analysis building on three corpora: 1) Documents from expert organizations 2) Documents from public-administrative organisations 3) Comission reports from Covid-19 comissions	We employ structured cased comparisons of the changing position of health authorities in national politico-administrative systems, relying on a complete mapping of organizations responsible for Pandemic Preparedness.	Working paper aimed at *Governance*

1.6 Conclusion

All papers in the thesis contribute empirically to understanding how public administrative systems and systems of professions and expertise interact to shape regulatory governance and conceptually to the disciplines of Public Administration and Sociology of Professions and Expertise. In the following I will present the results in terms of first, empirical findings in relation to the four research sub-questions, second, the conceptual contributions to the two literatures and finally return to the overall research question.

Empirical findings

The first paper investigates the role of civil servants vis-à-vis external actors in establishing new expertise in the public sector. It does so by comparing four Danish governmental agencies since 2010, and their use of BI. The investigation points toward several important factors pertaining to the external actors, civil servants, and the contextual politico-administrative environment. In terms of external actors, the paper shows how smaller consultancies and academics have played central roles in spreading BI ideas, both in assisting with administrative practice and in legitimizing approaches. Further, it reveals that rather than existing in separate spheres, there is competition between consultants and academics in providing expert work to public organizations. And while this competition might be particular to the expertise of BI that blends scientific and practical legitimation, it is also illustrative of a more general trend where academics are increasingly under pressure to conduct and demonstrate the value of their research in applied practical settings (Williams 2018). In terms of civil servants, the paper shows that the autonomy given to middle managers in agencies matter for the way ideas are converted to administrative practice, and for future demand for consulting services. In all cases middle-management (office managers) appear to have taken the initiative, while internal capacity building has largely resulted in a refinement of BI to fit that particular setting. The account lends credit to the notion of middle managing bureaucrats being empowered to influence policy, including through the introduction of ideas that reconfigures administrative expertise and how policy makers view the public. Finally, the paper discusses how, as administrative expertise, BI has found purchase within a general shift in innovation-policy, where innovation is seen as a political tool for effectivization. This means that while it is not inherent in the BI framework to pursue cost-cutting measures, this is one of the normative resonances that has facilitated its spread.

The second paper investigates how the overall strength of a professional project depends on connective and protective strategies linking across public administration, university, and professional ecologies. It does so by comparing the process of establishing 'Behavioral Insights' across public administration and expert environments in Sweden, Norway and Denmark since 2010. What the analysis shows is that as an emerging professional group, behavioral specialist were and are caught in a balancing act between alliance building to establish themselves across 'ecologies' and of delineating the core of their expertise in the face of occupational incumbents. In the university ecology this depends on establishing homelands of 'interdisciplinarity' in the face of the mother disciplines of Economics and Psychology. In the professional ecology it depends on building networks, educational courses and certification that works to, on the one hand give everyone a basic skill set to work with behavioral change (to expand reach), but also to create demand for 'professional' assistance with such change. In the politico-administrative ecology it depends on showing the efficacy of behavioral approaches in the face of professional and legislative constraints. What the comparison shows is that BI professionalization in the politico-administrative ecology appears crucially to depend on 1) actors being able to bridge ecologies successfully to introduce scientific authority as Business Intelligence, and 2) managerial support and resources to establish organization infrastructures to place behavioral specialists in central coordinating positions. The latter factor appears to depend crucially on structural constraints in terms of resources and precedents, but also on the strength of incumbent professional groups and their priorities. These dynamics can have effect on managers' endorsement of changing approach to the production of policy advice.

The third paper investigates how the beliefs of experts across academia, public administration and expert organizations influence policy preferences and responses. It does so by focusing on the organization of public health security and policy responses during the first wave of the COVID-19 pandemic in Denmark, Norway and Sweden. The study employs a structured case comparison and a regression analysis of an expert survey completed in December 2020. The study finds no evidence indicating that COVID-19 policy variations between Denmark, Norway, and Sweden are the result of differences in the policy preferences of national expert groups. Instead, the study highlights the importance of other factors such as the politico-administrative organization of pandemic preparedness systems. Further, it finds that expert support for dominant beliefs such as the benefits of a 'focused protection strategy' is associated with consistent policy preferences across locations in the policy-advisory system, professional and disciplinary background, and

geography. This means that perceptions of pandemic responses are associated with dominant ideas such as belief in focused protection (which again covaries with other beliefs in individual freedom). Experts supporting 'focused protection' perceived their country's COVID-19 response as an overreaction if they lived in a country pursuing a suppression strategy whereas they perceived it as more adequate if they lived in a country pursuing a mitigation strategy. The empirical findings remind us to be careful in ascribing policy preferences to professional groups as collectives. Notably, though, the study was designed to target public health experts with medical and economics backgrounds but did not focus on security expertise, which is central to the next paper.

The fourth paper investigates how the authority and configuration of public agencies depend on developments in the expert system. It does so by comparing changes to public health agencies' authority on the issue of public health security in Denmark, Norway, and Sweden from 2001 to 2021. It shows how the divergent development of security expertise and politico-administrative factors conditioned the authority available to public health agencies prior to and during the COVID-19 pandemic. Empirically, the comparison reveals how the authority wielded by public health agencies on the issue of Public Health Security were divergently configured in the three countries. One of the sources of this divergence was the development of novel security expertise in the expert systems of Norway and Sweden. In Norway, this led to early contestation of the knowledge mandate of its public health agency, whereas, in Sweden, the mandate was successfully protected due to the relatively stronger legal authority of the agency. In Denmark, the relative lower authority associated with security expertise left the Danish public health agency with a relatively uncontested knowledge mandate on the issue for decades. However, during the COVID-19 pandemic, its technical and moral authority was contested by politicians and top bureacurats from the Prime Minister's Office ('Statsministeriet'), enabling them to create more space within the state to claim authority for themselves and for security experts.

Conceptual contributions

Conceptually, the papers contribute to literatures in public administration and the sociology of professions and expertise, by juxtaposing and integrate insights from both. The starting point is that public administration with layered administrative reforms and transnational dynamics have seen increased regulatory power to public administration. At the same time, the creation of more government agencies has been part of a decentralization of the administrative system, which has

also involved a more distributed system of actors involved in diagnosis of policy problems and implementation, particularly in the forms of consultants and academics. What is at stake in these transformations is who has authority and how that authority is legitimated, and what drives these dynamics in authority at the meso-level across the politico-administration system.

As discussed in the first sections, several factors impinge on the questions of authority. Papers one and four place themselves most squarely in these discussions as they play out in the public administration literature, drawing on insights from the sociology of professions and expertise to make conceptual advances. Paper two places itself in on-going discussions in the professions and expertise literature, providing an approach to integrate better the politico-administrative system and the relations of hierarchy that structure it. Paper three makes a more substantive contribution to scholarship on public health security, by showing the complex effects of experts and expertise on pandemic preparedness systems and pandemic response.

Paper one shows the importance of professional factors as drivers of emergence and change in the Policy Advisory System. It draws on the 'second wave' of Policy Advisory Systems research, which has suggested that policy subsystems, understood as decision-making networks structured around policy issues, can be more or less accessible to particular actors, while being more or less open to different kinds of policy advice depending on 'ideational compatibility'. In this vein, Craft and Wilder (2017) have suggested four 'ideational compatibility' archetypes, encompassing 'content', 'purpose', 'issue' and 'relational' aspects, that makes Policy Advisory Systems more or less ideationally coherent. The model developed by Craft and Wilder is specifically aimed at understanding the "compatibility among adviser and advisee" (2017: 231). Paper one argus that the archetypes of 'content' and 'purpose' which are understood as *policy* ideas/aims/instruments, should be revisited, since an overly focus on *policy* overlooks the potentially central source of ideational compatibility and change found in the literature on professions and expertise in the Sociology of Professions. On this basis, the paper made a conceptual contribution to the literature by suggesting a re-conceptualize ideational compatibility in terms of professional norms and expertise, that might be more or less shared or contested across institutional locations in the advisory system. This contribution becomes important because much policy advice, particularly in public bureaucracies, are forms of professional work, and because it allows us to understand how peripheral actors participate in changing the professional norms of advice-giving inside the bureaucracy without being obviously 'political'.

The paper further contributes to other debates found in the literature on 'consultocracy' and 'scientization' of policy advice, which can both be understood as distinct forms of a general process of 'externalization' (Craft & Howlett, 2013; Diamond, 2020; Howlett & Migone, 2013). Where the consultocracy literature tends to emphasize the replacement of long-term civil servant work with short-term outsourced expert knowledge production (Ylönen & Kuusela, 2019), the paper shows how long-term civil servant work is being embedded and assisted through various external consultancy work. This highlights the importance of understanding the different kinds of relationships that exist between administrators and types of consultants at different managerial levels. Similarly, work on the 'scientization' of policy advice has tended to emphasize it as change to both the actors and the expertise involved in policy advice. Studies so far have primarily focused on advisory commissions, particularly in Norway, and show an increased prevalence of academic actors and claims based on explicit references to scientific knowledge (J. Christensen, 2018; Krick et al., 2019). Paper one, reflecting the thesis as a whole, give strong indications that similar processes are happening at the level of bureaucratic expertise and administration, but cautions us that, while administrative expertise based on scientific practices might, on the face of it, increase legitimacy, it is not clear that this kind of professionalization leads to more autonomy in the system.

Paper two develops the concept of an expert ecology contributing to a longer tradition of a 'processual' view of professions that has been developed in the ecological tradition drawing on the systems of professions (Abbott, 1988). This body of work stressess the (more or less) strategic actions of professionals in building alliances or not to claim authoritative expertise. However, few of these studies have revisited the meso-level for how we can compare across areas of expertise and between countries. In paper two, I attempt to provide such a model, by drawing on the recent work by Sidu Liu in considering the proximity and similarities between ecologies as social spaces. The proposition of the paper is to think of the 'expert ecology' as a basis for claiming authoritative expertise, and thus as a shorthand for the configuration of interfaces between social spaces involving expert claims. The expert topology of particular areas of expertise thus becomes a question of connections or distance between relevant ecologies. The study has revealed the centrality of actors collaborating and competing across social space and how activities and actors' movements establish connections enabling new kind of professional roles. In this example, actors in the academic ecology, moving and connecting to adjacent ecologies, have been a necessary

condition for supplying BI expertise and professionals to government. At the same time, cooperation with bureaucratic managers, seeing potential in lieu of political priorities in a competition for resources, have been central to establish more lasting professional positions and structures within the state. It thus presents a promising approach for the sociology of professions and expertise to engage more with the occupational landscape of the state.

Paper three contributes more substantially to existing scholarship on public health security (e.g. Baekkeskov, 2016; Baekkeskov & Rubin, 2014; Jasanoff et al., 2021; Lakoff, 2017). It shows the importance of experts in pandemic response systems and argues that they should be a more integral part of current and future research agendas that focus on understanding variations in how global ideas of pandemic preparedness are materialized in public health regimes and politico-administrative systems. Our findings have broader implications for contemporary policy debates about how to improve pandemic preparedness in the future and increase societal-wide resilience in light of scenarios where biological threats are expected to appear more frequently in the future (Morens & Fauci, 2020). On the one hand, the paper suggests the need to critically revisit established pandemic preparedness systems based on the experiences gained during the COVID-19 pandemic. On the other hand it points to a set of tensions related to how expertise and knowledge is used in crisis situations. While the results document that the majority of experts in Denmark, Norway, and Sweden support similar policy interventions, they are also indicative of genuine epistemic disagreements. Even though previous research has shown such disagreement to be the norm rather than the exception in times of crisis (Cashore & Bernstein, 2020; Seabrooke & Tsingou, 2016), it raises questions about how such expert disagreements are to be handled in future health emergencies where scientific evidence is crucial. It thus calls for the need to research how legitimate expert inclusion can be established in situations characterized by uncertainty and time pressure.

Paper four contributes to the literature on independent agencies in public administration by showing how agency authority is also a function of its position vis-à-vis an expert system. The paper contributes by building an analytical approach to the study of agency authority that highlights the legal, technical and moral authority of agencies and links changes in adjacent systems with transformations of authority inside the state. Bringing insights from the sociology of professions into the regulatory state literature, we suggest that agencies' claims to authority are encapsulated in their 'knowledge mandate', which defines their capacity to exert legitimate

control over a given policy issue in virtue of their legal, technical, and moral authority (Halliday 1985). To our mind, moral authority has not been given sufficient attention in the literature on independent agencies and 'agencification'. The analysis thus complements existing accounts that highlight the political, moral and 'co-produced' character of expertise in regulatory practice (Slaughter & Clark-Ginsberg 2018) while integrating such insights into discussions about authority. The paper's stress on the bureaucratic and epistemic underpinnings of authority encapsulated in the concept of knowledge mandates provides a way to study the dynamics of "changes in the regulatory process" (Lewallen 2020). When dynamics of regulatory transformations are placed in a knowledge mandate framework, it is possible to identify the legal, technical, and moral premises on which they are structured and provide propositions about how they are maintained and prone to change. Our focus on knowledge mandates points to important variations in how the structure and development of politico-administrative systems and systems of expertise provide conditional factors for the authority of agencies. Important sources of variation include: a) the development of competing expert systems around the same policy issue, b) the degree to which agencies are legally protected from political intervention; c) how much particular experts are able to influence policy ideas; d) the degree to which state agencies are able to further support the development of an expert system around their issue area; and e) political will that follows from issue salience.

Overall, the knowledge mandate framework helps conceptualize how regulatory systems are likely to progress based on legal, technical and moral dynamics. In the case of Public Health Security (PHS), it represents a regulatory area that has historically been of relatively low issue salience and marked by national regulation and authority, despite attempts by the WHO and the EU to harmonize systems. The analysis proposes that such variations are, in part, a product of the divergent developments of systems of expertise, in this case around all-hazards security policy, which generate different conditionality for the authority of public health agencies on the issue. Similar to tax and financial regulation (Christensen *et al*. 2020), this opens up for a view of PHS as emerging not purely from (trans-)national politics and politico-administrative organization, but from their interplay with expert and professional practices (Ban, 2016; O. L. Larsson, 2020). Such a focus has so far been limited in research on PHS institutionalization, which has been dominated by accounts of the coalescence of a 'global health security regime', based on the WHOs International Health Regulations (IHR) (Lakoff 2017).

The dynamics of expertise in public administration

The thesis empirically contributes to advance our understanding of how interactions between public administrative systems and systems of professions and expertise shape regulatory governance. The four thesis chapters have illustrated the complex interdependence between these systems in at least three important ways. Firstly, it has been shown how professional projects can travel from different origins in the expert system to impinge on bureaucratic expertise. Further, such translations depend on strategic actors building alliances and connections, as well as opportunity structures within the politico-administrative system. Second, the analysis identifies how professional projects act as crucial sources of technical and moral authority in public administration. The recognition of such authority affects the ability of public agencies to exercise control over regulation within the politico-administrative system and changes resource allocations within administrative organization. Third, the analysis points towards how professional projects can empower different occupational groups to challenge established bases for regulatory governance and lead to change. In the first case, this has been illustrated by how BI on the one hand has challenged existing logics of equal treatment of citizens and notions of the impartiality of information within public administration. This has led to the application of new regulatory instruments in the form of nudging and randomized behavioral experiments in some areas of administration. In the second case, 'all-hazards security' challenged established logics of 'proportionality' in response to pandemic events and was ultimately implicated in the reorganization of public health systems, although along different trajectories in each national case.

Conceptually, by connecting across literatures in public administration and the sociology of professions and expertise, the thesis provides tools that are flexible, to study and compare the composition of expert systems between areas of expertise and countries. Although the empirical investigation has been limited to only two jurisdictional arenas, thus I see great promise in further developing and applying the framework for comparison between areas of administration based on their intersection with jurisdictional arenas and expert systems as advanced here. Most importantly, this would involve looking more systematically at the

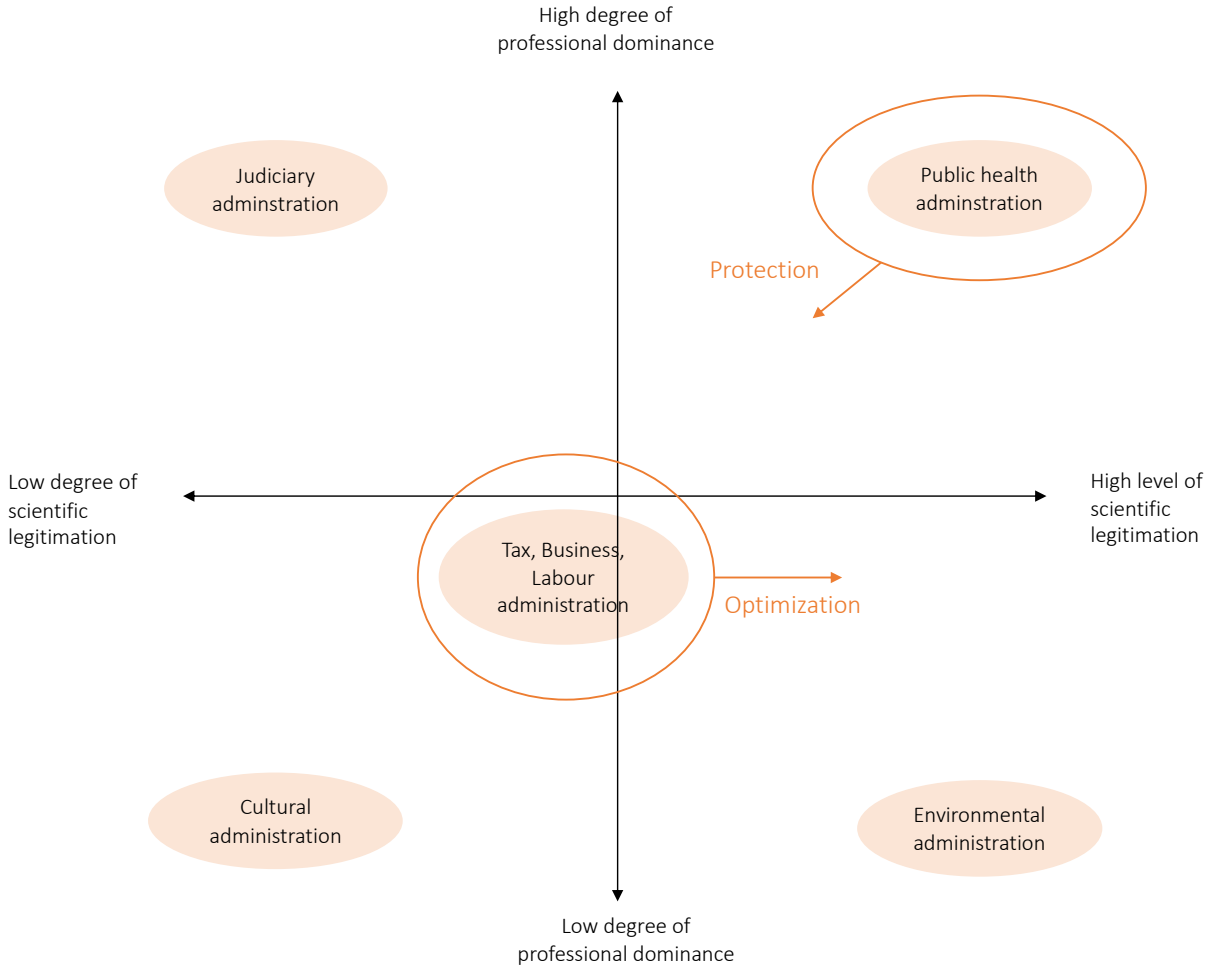
professional composition of different agencies and advisory bodies over time to understand the dynamics of change more accurately.

A central perspective that the thesis identifies, but leaves open for further study, is how different areas of public administration qua their scientific and professional composition exhibit different trajectories of regulatory change. In the cases dealt with in the thesis, two dialectic trends that take different forms depending on the area of administration in which they play out are distinguishable. I label them ***optimization*** and ***protection*****,** and they each have managerial and scientific logics that give different suggestions as how best to make decisions in public administration characterized by institutional and resource constraints.

To illustrate these opposing trends, we can place the areas of administration in which BI and all-hazards security have had most impact on regulatory governance along the two relational dimensions identified earlier (see figure 6). The first dimension is the degree to which one or few professions dominates and shapes the task space and policy area of the administration. The second dimension is the degree to which professionals in the area of administration ultimately mobilize scientific authority to legitimate practices.

Behavioral Insights has been most successful in areas of administration characterized by a median degree of professional dominance and medium levels of scientific authority. In these areas of administration, predominantly in taxation, business and labor market agencies, BI has operated and been attractive because it moved those areas of administration towards the use of more scientific authority in legitimizing regulatory interventions. As the empirical studies emphasize, at a discursive level Behavioral Insights operates as a scientifically grounded expertise while at a practical level its optimizing and effectivization qualities are stressed as a cost-effective way to improve compliance. Thus, BI can perhaps best be grasped as a form of 'expertise of sub-optimization' that has most easily found application in regulatory areas where it could support existing strategies and preferences. The case of the Swedish Environmental Protection Agency showcases how BI has been received more equivocally where incumbent bureaucrats see their role as pursuing more radical regulatory change. It also illustrates how Behavioral Insights might be adapting to the existing forms of expertise in Nordic administrations, where 'hard' regulatory interventions are more accepted, and thus it has potential to diverge further from Anglo-American experiences.

Figure 6: All-hazards preparedness and Behavioral insights as movements in the occupational landscape of public administration



An opposing movement is visible in the area public health security. Here 'all-hazards security' represents an attempt to professionalize the analysis of hazards to make them actionable, essentially by claiming that they go beyond risks and are potentially unknowable, calling for constant preparedness and precaution in the event of catastrophe. In the generally evidence-based domain of public health, such approaches have sat uneasily, and the analysis in paper four shows how different groups of experts drove change in the three countries, which had the effect of changing the regulatory structures of public health security. In Denmark and Norway where these changes have been most successful so far, it has had the effect challenging the dominance of

public health expertise in public health security systems. In Denmark, with the absence of a strong group of security experts, it was politicians who drove the precautionary principle.

These changes have not been 'anti-scientific' but moved administrative reasoning towards other inference structures prioritizing precaution and 'critical infrastructure' over proportionality and value of statistical life. To see this, we need only return to the late 90s and early 00s which saw a long-running discussion around the 'rationality' behind the "precautionary principle", particularly as applied to environmental policy (see e.g. Sunstein, 2002, 2005). The discussion then and now pitted proponents of cost-benefit rational calculation based on scientific certainty of probable effects against proponents of precautionary calculations based on scientifically grounded uncertainty. While critics of precaution see it as a 'paralyzing principle' that can be used by political actors to mobilize 'irrational' fear, others see it as a necessary tool in situations where knowledge is fundamentally or specifically uncertain[11].

However, stressing the 'unknowable' aspects of hazards does lead to regulatory instruments that are less reliant on scientific legitimation and more on generic methods of risk-assessment and scenario planning. These developments have already been noted by other authors. It reflects, for example, the classical insights by Ulrich Beck in his work on risk society, that risk cannot be professionalized because risks continually break and overflow boundaries (Beck, 1992). Despite such insights, there is no shortage of attempts to bring risks under the reign of rational calculability, nor of building ever more encompassing systems of 'early detection' and 'early warning', sometimes at the expense of more basic infrastructural investments. The attempts to professionalize risks, are what Eyal sees as one of the foundational causes of the 'crisis' of expertise, that risk controversies tend to pit groups of experts against each other (Eyal 2019).

[11] One of the main criticisms of the precautionary principle is the so-called 'dilemma objection' well summarized by Daniel Steel (Steel, 2013, see also 2015). He explains that, on the one hand, critics argue, the principle would be trivial if it merely claimed that full certainty is not a precondition for taking precautions, since this is something that every account of rational decision-making already accepts. On the other, it would be incoherent if it asserted that no activity should be allowed that may lead to significant harm. For in that case, the principle would prohibit the same precautionary measures it prescribes, as those measures themselves come with some risks of harmful consequences. Steels counterargument to this objection is that it depends crucially on a limited understanding of the uncertainty of how to define costs and benefits, and that in cases where knowledge of relevant outcomes is importantly incomplete, the precautionary principle is far from trivial and would often recommend against the cost-benefit approaches advocated by the critics. Rather, the precautionary principle should be applied 'proportionally' according to values of consistency and efficiency.

Overall, these developments are not about ‘more or less science’ in public administration, but about how different professional projects about apply rational and scientific reasoning to administration. Understanding the full implications of such reasoning and their moral underpinnings remain an important research topic for future investigation. Particularly how it relates to the existing and future organization of public administrative units in the never-ending effort to pursue the public good.

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Paper 1

Professional expertise in Policy Advisory Systems: How administrators and consultants built Behavioral Insights in Danish public agencies

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Abstract

Recent work on consultants and academics in public policy has highlighted their transformational role. The paper traces how, in the absence of an explicit government strategy, external advisors establish different organizational arrangements to build Behavioral Insights in public agencies as a new form of administrative expertise. This variation shows the importance of the politico-administrative context within which external advisors exert influence. The focus on professional expertise adds to existing understandings of ideational compatibility in contemporary Policy Advisory Systems. Inspired by the Sociology of Professions, expertise is conceptualized as professionally constructed sets of diagnosis, inference, and treatment. The paper compares four Danish governmental agencies since 2010, revealing the central roles external advisors play in facilitating new policy ideas and diffusing new forms of expertise. This has implications for how we think of administrative expertise in contemporary bureaucracies, and the role of external advisors in fostering new forms of expertise.

Keywords: Expertise, Policy Advisory Systems, Behavioral Insights, Sociology of Professions

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Introduction

Recent work on consultants and academics in public policy has shown the importance of understanding their role in transforming administrative and public policy (Kirkpatrick et al. 2019; Williams 2018; Ylönen and Kuusela 2019). One such transformation is the development of Behavioral Insights (BI) Teams in public administrations, that apply insights from behavioral sciences to public policy (Halpern 2016). Behavioral Insights draws together classical economic theory, cognitive science, and behavioral psychology, constructing an image of the less-than-rational actor with systematic deficiencies in rational decision-making that can be experimentally characterized and anticipated in order to develop more effective policy tools (OECD 2017). As an approach it has gained politico-epistemic authority by combining experimental evidence-making with political practicality, in the way that it allows policy-makers to act as "choice architects", while behavioral experts act as intermediaries between science, politics and citizens (Strassheim, Jung, and Korinek 2015).

While BI Teams are known in several OECD countries (OECD 2017; World Bank Group 2019), variation in their establishment within public agencies remains understudied. Denmark is known to follow international management trends in public administration with close affinities to Anglo-American management ideas (Greve, Lægreid, and Rykkja 2018). But where most administrations have diffused BI ideas through elite units associated with the executive branch, BI has developed without such central coordination in Denmark. Given this we can expect to see variation in how BI is introduced. It is known that Danish bureaucrats remain primary sources of policy information for politicians, while external advisors, like consultants, are secondary (Blom-Hansen, Bækgaard, and Serritzlew 2020). Research on sources of influence in public administration should account for such variation, including in the role of consultants.

Studies across national settings have noted the growth of a distinct market for consultancy services targeted at the public sector. It has particularly been questioned how such changes may affect the *ethos* of civil service and change the *practices* of policy production and program management within public bureaucracies (see the Editors' introduction to this symposium). To interrogate the changes, this analysis builds on the tradition of Policy Advisory Systems (PAS) and the Sociology of Professions. PAS stresses the importance of disentangling the influence of consultants in systems of policy advice and understanding the policy context within which they operate (van den

Berg et al. 2019). The Sociology of Professions literature sees experts and professionals, regardless of their institutional locations, as engaged in struggles for legitimacy and 'jurisdictional' control in the competition for expert work inside and outside the public sector (Abbott 1988; Eyal 2013; Noordegraaf 2007). Together they highlight the importance of understanding the actors engaged in policy advice and the context in which they interact, alongside what types of expertise that get recognized as valuable policy-advice, and how.

The paper investigates how external advisors embedded Behavioral Insights as new administrative expertise in the Danish Public sector, comparing four case studies of public agencies since 2010. Two characteristics of the case stands out. The first is the enrolment of academics into diffusing and initiating BI initiatives in public agencies, both in their capacities as researchers and as consultants. The second is the involvement of small specialized consulting firms, that have received less attention in the literature compared with Global Professional Service Firms and Management Consultancies (Armbrüster 2006).

The paper contributes to the existing literature on policy advisory systems in three ways. Firstly, it extends existing conceptions of policy advisory 'content' by putting forward 'expertise' as consisting of professionally constructed sets of diagnosis, inference, and treatment. Second, applying this conception leads to a deeper understanding of how administrators and consultants interact in the embedding of new forms of administrative expertise. Finally, analyzing this process in a Danish neo-corporatist regime, it enriches our empirical understanding of how the 'scientization' of policy advice operates in an administrative setting (Christensen 2018). Scientization has so far been suggested as a form of externalization, where academic advisors and scientific arguments play an increasing role as sources of policy advice, this case further shows their interplay in the introduction of science-based practices as administrative expertise.

The first two sections of the paper outline the analytical framework and methodology. The third section presents an analysis in three steps. It first focuses on the relevant politico-administrative and policy transformations over a 20-year period that provide the context for embedding BI work in the public sector. It then compares the roles played by external advisors in facilitating BI policy ideas and diffusing BI forms of expertise. Finally, it investigates how these external relationships have become lasting parts of the various organizational setups. In the final sections I discuss the

implications external advisors and administrative expertise have for public administration scholarship.

Administrators and consultants in public administration

One way of studying the effects of consultancy on civil service ethos and practices is through a focus on policy advice. Policy advice, at its core, has to do with the kind of information and advice that is available and influence policymakers. Analyzing policy-advice within a changing system, PAS basically asks two questions; who is supplying the policy advice and what is the content of that advice? These are the 'location' and the 'content' dimensions of policy advice. PAS has developed a detailed framework for studying the actors supplying policy advice and their positions in relation to the politico-administrative system, geared towards comparative and historical studies of their development (van den Berg et al. 2019; Craft and Howlett 2012; Halligan 1995; Howlett and Migone 2013). Traditional PAS has political decision-making at the center of analysis, developing fine-tuned typologies to distinguish positions of actors inside and outside the official political system and administration to see how these change over time or between contexts. These actor positions are often represented as belonging to four separate "communities" depending on their "distance" from Government and their "insider-outsider" status in relation to the public sector (van den Berg et al. 2019). Here, policy influence is seen as a function of the proximity of actors to government decision-makers.

Recent theoretical developments, the 'second wave' of PAS, has transposed this framework in crucial ways to better incorporate 'context' and 'content' (Manwaring 2019). This is because location only forms part of the picture of policy advice, and particularly in the case of increasingly complex advisory systems, understood as systems with more distributed agency, content might better depict the nature of policy advice (Craft and Howlett 2012, 2013; Hustedt 2019). In this development, the question of influence has been transposed to ones of 'access' and 'ideational compatibility' (Craft and Wilder 2017). Focusing on access, shifts analytical emphasis to the policy subsystem context in which advisory systems are situated. The basic idea is that policy subsystems, the decision-making networks structured around policy issues, can be more or less accessible to particular actors. Ideational compatibility refers to different aspects of policy advisory systems that make them more or less open to different kinds of policy advice.

Craft and Wilder (2017) originally suggested four ideational compatibility archetypes, encompassing 'content', 'purpose', 'issue' and 'relational' aspects, that makes Advisory Systems more or less ideationally coherent. The ideational compatibility approach has been criticized for potentially downplaying issues of political demand and power, and to risk overlooking the distribution of power within PAS (Manwaring 2019). Such criticism is valuable, particularly by emphasizing the question of "why some advice is accepted and others not" in specific instances, although the initial problem may be overstated. The model developed by Craft and Wilder is specifically aimed at understanding the "compatibility among adviser and advisee" (2017: 231). In this perspective, there is a clear potential for revisiting the archetypes of 'content' and 'purpose' which are understood as *policy* ideas/aims/instruments. An overly focus on *policy* overlooks a potentially central source of ideational compatibility (and change) found in the literature on professions and expertise in the Sociology of Professions. Such literature sees 'experts', be they academics or consultants, as competing for expert work in struggles of legitimacy and 'jurisdictional' control over professional work (Abbott 1988; Eyal 2013, 2019). By incorporating these, we are therefore able to re-conceptualize ideational compatibility in terms of professional norms and expertise, that might be more or less shared or contested across institutional locations. This becomes important because much policy advice, particularly in public bureaucracies, are forms of professional work, and because it allows us to understand how peripheral actors participate in changing the professional norms of advice-giving inside the bureaucracy.

The Sociology of Professions has traditionally been concerned with the development of professions and influence of ideas over time in both national and transnational settings (Abbott 2005; Seabrooke and Tsingou 2015). In political-administrative and organizational settings, Noordegraaf (2007) has suggested the term 'hybrid professionalism' when dealing with the civil service. Particularly in the public sector we find bureaucratic pressure for hierarchical control conflicting with professional pressures of expert control.

In this context, we can understand the dynamics of expert competition as around control over diagnosis and treatment of policy problems. That is, between professionally constructed sets of diagnosis, inference, and treatment. This builds directly on the original definition of professional work and jurisdiction by Andrew Abbot (1988). Public administration ultimately allows for mixed professionalism, since bureaucratic expertise relies on both disciplinary and practical knowledge

(Mangset and Asdal 2019). However, professional orientations and identities do change over time, and these changes are important for ideational compatibility in the system.

An important finding in the Sociology of Professions, is the way science and expertise has acquired a more prominent role in politics and daily life, particularly in relation to the increased prevalence of 'regulatory sciences' that sit at the interface between science, which does not proscribe action, and politics, which does (Eyal 2019). Examples of studies that mirror discussions of evidence-based policy-making, is of how Randomized Control Trials have grown as the "gold standard" for evaluation in international development policies (de Souza Leão and Eyal 2019), showing how experts, particularly in situations of vulnerability, subordination and crisis, turn to the "mechanical objectivity" provided by such methods. Other examples on the long-term transformation of professional disciplines are studies of the internationalization of the economics profession (Fourcade 2006) and how professionals trained this way have found positions within public administration and impacted policy-making (Christensen 2017).

Some of these ideas have found their way into the PAS literature (Krick, Christensen, and Holst 2019). For example, Christensen (2018) has observed an increasing 'scientization' of policy advice, that is, a growing reliance on academic expertise in public policy. His study of the increased access of academic economists to Norwegian advisory commissions, show this transformation in corporatist systems. While corporatists systems with consensus or compromise-based policymaking styles, such as in northern Europe, have often been more open to external policy advice, this has mostly been in the form of including organized interests in governmental advisory bodies (van den Berg et al. 2019; Hustedt 2019). These observations indicate that external advisors can combine elements of scientization as well as forms of 'externalization' identified in PAS literature (Craft and Howlett 2013). These can be important transformations of policy advice, while not being explicitly politicized as being partisan. Generally, while processes of externalization and politicization have been confirmed in most OECD countries (Howlett 2019), countries vary (Craft and Halligan 2017), and we should be aware of a potential 'Westminister bias' (Hustedt 2019).

Returning to the question of how external advisors embedded Behavioral Insights as a new administrative expertise in the Danish Public sector, PAS stresses the importance of understanding consultancy and advice within its political subsystem context. In this case, that context is one of

politico-administrative reform policy across agencies, and of the individual agency policy areas. The PAS perspective also makes it important to understand the role of smaller academic and specialized consultancies vis-à-vis administrators, in building administrative expertise. The Professions perspective ultimately reorients the focus on these actors, seeing their role in cross-cutting professional competition by focusing on the content of expertise, as professionally constructed sets of diagnosis, inference, and treatment

Combining these perspectives generates three questions that structure the analysis. First, what is the political-administrative and institutional context in which BI becomes embedded in public administrations? Second, what impact do external knowledge advisors have on internal institutionalization of administrative expertise? Third, how and why does the form of BI expertise vary across types of agencies in public administrations?

Methods and data

The paper relies on interviews with civil servants and administrative documents, published and internal, from four agencies working with behavioral insights in the Danish Central administration. The agencies were identified by a thorough search of governmental reports and webpages containing reference to BI, existing enumerating reports (World Bank Group 2019) and interviewee snowballing. This search yielded the four cases for this study. Although important to the overall politic-administrative reform context, the Ministry of Taxation is not included in the case comparison because of its turbulent reform history (see Christensen and Mortensen 2018). As I discuss later on, there are clear historical politico-administrative reasons why behavioral insights have been institutionalized in these agencies and not others. Table 2 presents the four cases, their acronyms, the status of their BI work and the interview material from each.

10 semi-structured interviews were carried out with civil servants working in these teams and their collaborative partners. About half of respondents were BI specialists, predominantly junior officials with PhDs. The other half were senior officials, mostly with management responsibilities and diverse careers. This mix is characteristic of most BI teams. Each interview lasted between 1-2 hours and was preceded by a background interview of equal length. In addition to questions of career and profession, the interviews focused on: a) the organizational history of working with behavioral insights; b) how BI was applied in practice; and c) the actual and potential involvement of external advisors in both of these activities.

Table 1: Overview of cases and interviews

Ministry	Ministry of Industry, Business and Financial Affairs		Ministry of Employment	
Agency	The Competition and Consumer Authority	The Business Authority	The Agency for Labor Market and Employment	The Working Environment Authority
Acronym	KFST	ERHVST	STAR	ARBTIL
Year of first reported BI projects	2012	2012	2015	2016
Status of systematic BI work today.	'Large' unit of eight civil servants, anchored in consumer-political office.	Coordinated by one central civil servant. Relies on long-term partnership with consultancy. BI anchored in office for modernization and simplification	Coordinated by one central civil servant. Relies on partnership with University. BI anchored in office for knowledge and analysis	Small unit of two-five civil servants, anchored in communications office.
Interview material	Three respondents, four interviews of 1-2 hours, one 1-hour meeting.	Two respondents, one interview of 1 hours, 2-hour meeting	Two respondents, three interviews of 1 hours, 1-hour meeting	Three respondents, three interviews of 1-2 hours, 1-hour meeting
Respondents	K1, K2, K3	E1, E2	S1, S2	A1, A2, A3

It is difficult, in practice and in theory to clearly define the characteristics of a "BI Team". Institutionally, because of "a wide range of models for integrating BI into the daily work of public administration" (OECD 2017). But equally because of the hybrid nature of BI as a (proto-)profession drawing together sub-disciplines from the 'behavioral sciences', particularly Economics, Psychology, and Neuroscience. Here I have used a minimalist definition of cases where one or more civil servant explicitly work with BI on a regular basis, combined with an organizational awareness of a 'behavioral model'. This definition is appropriate for the level of institutional integration BI enjoys in Denmark.

Several process models exist for applying BI (e.g. BIT 2012; OECD 2019), but each empirical case shows variation. This is because, as a form of expertise, BI exists on a continuum from Behavioral Design (design-driven) to Behavioral Economics (hypothesis-data-driven), all grounded in the regularities of behavioral biases. The process of 'diagnosis' is similar across BI: behavioral process models are used to diagnose policy problems as involving behavioral problems or not, and while both ends of the continuum stress the testing (and evaluation) of interventions via experimentation, its thoroughness and scope differ vastly. Inference is most often based on lists of behavioral biases but can again be more or less sophisticated. Finally, BI offers several treatments, but particularly 'nudges', in the form of interventions in the 'choice architecture' of citizens, have yielded popular and often cost-saving results.

Analysis

The analysis is structured in three sections. First, the four cases are situated in their changing politico-administrative context. Second, a comparison of the involvement of external advisors in each agency, and what impact it has had on internal institutionalization of expertise. Finally, the analysis compares how the form of BI expertise varies between agencies, relating to external relationships and affecting future reliance on external advisers.

Changing politico-administrative context

Denmark is characterized by a consensus-driven and neo-corporatist political-administrative tradition. Over the past 20 years, the country has experienced an entanglement of reforms variously characterized as New Public Management and New Public governance (Greve et al. 2018; Pedersen and Löfgren 2012). The challenge such reforms make for traditional professional roles has been noted (Sehested 2002). Added to these reforms is a growth in evidence-based policy-making in some areas of the public sector (Andersen and Randrup 2017). The use of consulting services in the central administration has been central to political and academic debates, but changing government accounting standards and practices make historical comparison difficult (Løhde 2019).

The period has been characterized by "de-bureaucratization" and "modernization" efforts of successive Danish governments. Particularly, administrative innovation policy has been central to support these agendas and thus forms the subsystem context for this study. The agendas

entangle concerns that have been shown to have importance for the transformations in the organization of the public sector vis-à-vis consultants (van den Berg et al. 2019). These have been salient across different political agendas and are concerned with the power between the standing bureaucracy and political system and concerns of the disposition of human resources in light of the New Public Management business-orientation.

The process of change in administrative innovation policy can be demonstrated through an organizational genealogy. It shows how BI is embedded across agencies within a general transformation from an early 'public innovation'-model based on social-science met 'Design-Thinking' to a 'Disruption'-model based on tech and data-driven innovation. BI straddles these models in its versioning from Behavioral Design (softer, design-driven) to Behavioral Economics (harder, hypothesis-data-driven). The process is illustrated by focusing on five key moments, sketched in figure 1.

Mindlab was created by the then Ministry of Business Affairs in 2002 at the same time as a new center-right government. The ensuing period was marked by a series of reforms of the public sector, initiated on the back of a centralization of the administrative system. Mindlab was one of the first policy innovation labs in the world (Lee and Ma 2019). In its first iteration, the lab was focused on "enhancing the efficiency of the policy development cycle" as a catalyst of internal organizational development, modelled on private sector organizations. In terms of expertise, MindLab was staffed with employees with formal skills in creative facilitation, teambuilding, hosting, and policy development (Carstensen & Bason 2012).

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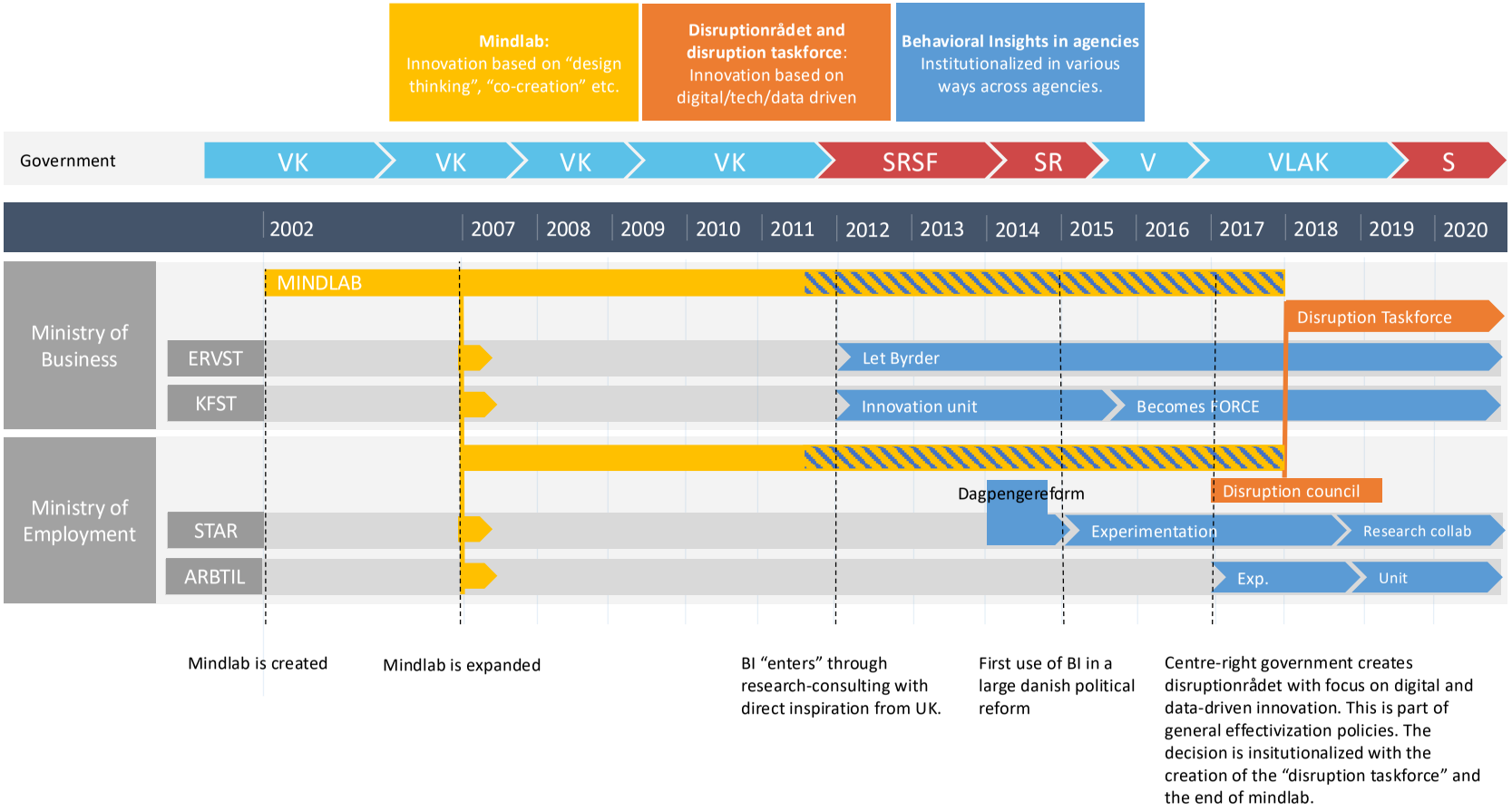
Organizational genealogy:
Behavioral Insights in a transition of innovation



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In 2006, Mindlab became a cross-governmental unit between the ministries of Taxation, Economics and Business Affairs, and Employment. These ministries were central to effectivization efforts, covering more than 80% of business regulation. Mindlab took the form of semi-public consultancy/think tank working on projects assigned by its parent ministries but also developing doctoral researchers and engaging in private sector collaborations. A central part of Mindlab's mission brief was a focus on 'de-bureaucratization'. Mindlab pioneered regulative simplification through projects such as *Byrdejægerne*, using customer and user involvement to identify "unnecessary red tape" (Aspøy 2018).

The lab introduced a new type of expertise in government, adapting design thinking and qualitative research to policy development. Professional profiles were directly inspired by leading strategic design firms such as IDEO, Gravity Tank, and ReD Associates. The staff had backgrounds in anthropology, political science and interaction design (Carstensen & Bason 2012). The organization imported the methods of these strategic design firms, such as 'Business Development' into public administration policy language.

In 2011-12, inspired by the first BI team in the UK, Danish researcher-consultants initiated projects in the two agencies under the Ministry of Economics and Business Affairs, the Business Authority (ERVST) and Consumer and Competition Authority (KFST) (World Bank Group 2019, Interviews). Meanwhile, the Danish Nudging Network, created for stakeholder involvement in a research project in 2010, grew into a professional network across private, public and academic institutions. Several interviewees were involved in this network, for example, one used it to land his current job. KFST and ERHVST were the first agencies to experiment with Behavioral Insights through selected projects. ERVST formed a partnership with a researcher-consultancy

and KFST invested in internal capacity building. Mindlab became recognized internationally as a Behavioral Unit, despite its foundations in design-thinking and "citizen co-creation" (OECD 2018).

In 2015, policy reforms actively incorporated BI in the form of Behavioral Economics (BE) for the first time. The Unemployment Benefits Commission was appointed to produce a report on the unemployment and benefit system drawing directly on BI ideas. The commission relied on expertise from Danish academics to prepare documents for the relevance of applying BE in the context of employment (Holmlund 2015; Kvist 2015). The reform directly initiated the use of BI in STAR – the agency responsible for implementation. In the following years BI consultants were hired for specific projects in relation to the reform work. However, STAR, with strong internal Economic expertise, did not pursue BI as an internal organizational model.

In 2018 Mindlab was terminated and replaced by a 'Disruption Taskforce'. The background was the center-right government's decision to set up a minister for innovation to centralize government's efforts to further modernize the public sector (Aspøy 2018). This change marked a paradigm shift in innovation policy, from one based explicitly on ethnographic/design expertise, to data-driven innovation and effectivization.

It is within this general change in administrative innovation policy, that BI efforts and ideas have found their way into the central administration. Since the early 2000s the ministries, of Business, Employment and Taxation - accounting for the majority of Business regulation and citizen interactions - have been central to modernization efforts. These are also the ministries where BI teams have emerged, highlighting BI's close relationship with these efforts and NPM in Danish public administration.

External advice and internal institutionalization

Within this context of wider transformations in the organization of public administration, we can compare how external knowledge advisors were involved in the institutionalization of BI work across the four agencies. The comparison shows how new policy ideas are transformed in the context of agency-specific policy goals, priorities, and existing forms of expertise. A recurrent, but not explicit, figure in all accounts is the interlinking of persons in the Danish Nudging Network, many of which joined the BI teams. The multi-locality of certain actors across business

and academic (and public) boundaries, mirrors a form of expert positioning, known in the literature on Sociology of Professions as 'epistemic arbitrage' (Seabrooke 2014).

The account is structured around two ministries and three phases, in which external actors play different roles vis-à-vis the agencies. The three phases form a heuristic structure for comparing the cases but do not form consistent time intervals. The first phase considers early experimentation with BI. The second phase considers agencies' decision to work systematically with BI. The final phase considers the nature of this systematization and its relation to how BI efforts are internalized through frameworks, capacity building, expertise, and projects.

The Ministry of Industry, Business and Financial Affairs

The Business Authority (ERVST) and Consumer and Competition Authority (KFST) were the first agencies to experiment with BI in the Danish Public sector. According to interviews, the experimentation was initiated by office managers in both agencies with close relationships to the same BI academic-consultant.

Phase 1

ERVST built its BI efforts in a way that most clearly drew on the Mindlab legacy of public innovation. This was particularly so because of the agency's long focus on de-bureaucratization and simplification of the public-government interface. BI initiatives centered within the "office of fewer burdens", tasked with easing red tape for businesses in particular. In this work, the office had a long relationship with Mindlab, particularly in using ethnographic methods to discover areas for potential de-bureaucratization. Key people in the office, central for later BI developments, have careers through Mindlab and anthropological backgrounds.

Interviewees describe the agency as having an "innovation DNA", always looking for the next new thing (E1). BI experimentation started in the agency through a senior manager's contact with a key academic-consultant. A central employee was tasked with coordinating efforts. Looking at contemporary reports, the first five experiments were initiated in 2012, in collaboration with the medium-sized consulting firm Copenhagen Economics. The positive results from these first experiments led to the decision to establish "a permanent team… to identify and prioritize areas

where the business support system can be improved by means of behavioral economics" (DBA and CE 2013).

BI efforts in KFST, as in ERVST, had affinities to Mindlab, but developed into a much stronger behavioral consumer policy unit. Efforts originated in the Center for Innovation; an office explicitly modelled on Mindlab. Much like in ERVST, managers were inspired by a key academic-consultant to learn more about the applicability of BI. In contrast to ERVST, KFST hired a graduate student to figure out how BI could be incorporated in the agency's work. From 2013-2016 the center pursued a strategy of testing and internal capacity building. This required legitimization by external academic advisors. In 2013 researchers were asked to establish a 'knowledge base' to account for the effect and potential of using behavioral economics in consumer policy (Damgaard 2013; Damgaard and Koch 2013). The following years were spent upgrading internal expertise; one employee pursued a doctorate researching behavioral consumer policy, while PhD level behavioral scientists were hired, with backgrounds in Epidemiology, Economics, and Psychology.

Phase 2

From initial experimentation, the ERVST team strove to build a network and an awareness of behavioral insights throughout the agency. The 'permanent' team at ERVST consisted of one coordinating employee with an internal network that developed a long-term relationship with BI consultants. The relationship grew out of a partnership with InudgeYou in 2014, to make a series of projects (E1). Interviewees highlighted that projects focused on combining experimental effects with "Business Case" cost-saving models inherited from earlier Mindlab project models. Courses in BI were arranged for some employees, but few steps were taken to upgrade 'harder' BI capacities. Instead, consultants were routinely called on to help with "all the behavioral bias knowledge, … and how to work experimentally" (E2).

In 2016 KFST sought to integrate the use of BI into policy development in a more substantial manner (K1). External advisors, this time the small and medium sized consulting firms, InudgeYou and Copenhagen Economics wrote a report creating and legitimizing the space for working with BI in a more policy-oriented fashion (InudgeYou and Copenhagen Economics 2016). Public reports from the BI team sketched out this view as legitimate and pointed towards

its applicability as method (KFST 2017) and as "metaphor" for what is now termed "Behavioral Consumer Regulation" (KFST 2018). During the period, the team grew to eight full-time employees, four of them with PhDs. A significant investment in expertise.

Phase 3

In ERVST, the tradition and expertise of Mindlab has had a lasting effect in a focus on the "engine room" rather than the "policy road" of applying BI to public administration (E1). Analyses feature the language of Business Development to optimize administrative systems. The version of BI practiced here, puts most weight on optimizing user-experiences and simplifying systems, through prototyping and testing, and less on developing policy ideas. This reflects the office's mandate to "reduce burdens" in interaction with the public sector. In this way BI is seen as one in a range of optimization tools, with interviewees stressing the increased control of Data Science and UX Design professionals.

In comparison to ERVST's stress on optimization, in KFST BI developed as a policy-tool. This included establishing a behavioral 'lab' to test out principles of consumer protection in 'controlled settings', featuring eye-tracking and stress measuring technology. BI is also used paradigmatically to challenge and develop consumer regulation in the system. The team positioned itself as a central governmental resource for other agencies to consult in working with BI. This, in turn, transformed their self-understanding; "what separates us from BI is that we do not use [simplified] 'cookbooks' in how we understand and solve problems… we use social science methods on consumer problems" (K3). Self-confidence as social scientists also affects their reliance on external advisors. Interviewees stressed how their internal expertise allows them to set up more limited and well-defined tasks for consultants to carry out (K2, K3).

The Ministry of Employment

The Agency for Labor Market and Recruitment (STAR) and the Working Environment Authority (ARBTIL) began their BI efforts later than the agencies in the Ministry of Business. While both cases show local management initiative, they more clearly display responses to external pressures.

Phase 1

BI efforts in STAR are the most clearly rooted in the discipline of Economics and reflect an existing evidence-based strategy. According to interviewees, STAR had an early awareness of BI in the Economist dominated office for "Knowledge and Analysis" (S2). However, the first BI experiment did not take place before 2016. When commenced, it built on the views of the unemployment commission of the previous year. There Behavioral Economics was explicitly factored into modelling, with the view that "this knowledge should affect the design of incentives in the unemployment system" (Dagpengekommissionen 2015). Again, academics were central in legitimating the applicability of behavioral economics in the commission (Holmlund 2015; Kvist 2015). The first BI-discussion took place in 2015, with a central researcher-consultant enrolled into the policymaking process (S2). In the following years, small consultancies were routinely hired for limited Behavioral Design projects.

ARBTIL shows how office-management-initiated experimentation in collaboration with external actors opened a space for internal expertise building. In 2016 BI consultants were invited to do half-day workshops with office managers. One interviewee recalled "We had some good discussions, and it was kind of a wake-up call, couldn't this be relevant to us..?" (A2). In the ensuing two years, the office ran three behavioral projects with different BI consultancies. According to an interviewee, two of these projects showed positive effects of intervention. "Positive" results were central in gaining political traction within the administrative system and setting the scene for later institutionalization (A1, A2)

Phase 2

In STAR, existing expertise and management strategies shaped BI institutionalization. STAR was at the forefront of a ministerial wide evidence-based strategy initiated in 2013 (see Andersen and Randrup 2017). The strategy set the goal of empirically verifying the effect sizes of job market interventions with randomized control trials as the gold standard. The agency applied to the Ministry for research funding for a Behavioral Economics research center, at the University of Copenhagen, on "Labor Market Performance" that was funded in 2016 (Thoby 2017). As in the other cases, before the research center was setup, the agency had commissioned a legitimizing literature review on "behavioral economics and labor market policy" from academics, who were later to lead the research center (Nielsen and Sebald 2016).

In ARBTIL, following initial experimentation, an important outside factor was the establishment of the Expert Committee on Work Environment in 2017. The committee's mandate included that it should look at "new instruments … to change company behavior (nudging)"(BM 2017). In its findings the commission relied on the agency, as well as large consultancies in documenting the potential usefulness of nudging as a policy tool (Rambøll and PwC 2017). Following the expert committee report, parliament increased the funding for ARBTIL over a three-year period, creating an opening for management to establish a BI team in 2019. The team became centered in the communication office, which led the early experimentation work and was close to the agency's executive functions. A specialist BI consulting firm was hired to assist in setting up the new team and develop a prioritization and diagnostic tool (A1, A3). The first months were spent spreading knowledge of BI, creating ambassadors in the organization, and creating a project-framework for prioritizing ideas.

Phase 3

In comparison with the first two cases, STAR operates less explicitly with BI. Because of the existing economic expertise in the organization BI is reduced to interest in 'nudging' as a policy-instrument whose effects have not been properly evaluated in labor market research. Thus, BI has been enrolled in an existing evidence-based policy regime built around economic expertise where economics sits atop the hierarchy (Fourcade, Ollion, and Algan 2015). Interviewees reason that STAR's problems are "more complex", making simple BI-process models unsuitable and increasing the need for a more general evidence-based approach.

The BI team in ARBTIL has developed a process model, which is supported with behavioral scientists hired for their "strong quantitative" backgrounds (A2). Within this agency there has been a trend towards hiring those with longer quantitative research training. The new team makes use of the existing BI units in government through a knowledge network and by borrowing KFST's lab. The two units appear to be building strong affinities.

Comparing BI expertise

Comparing how the form of BI expertise varies across agencies, BI has been adapted to existing forms of expertise in each. In ERVST, BI developed with a strong affinity with the Mindlab tradition of Business development, rooted in existing professional backgrounds. Here, a long-term

partnership developed with a small behavioral consulting firm, providing specialized behavioral expertise when necessary. The team was centered around a central employee, with a loose project-network internally in the agency, and external networks with academic-consultants and the OECD. In practice, BI is used as part of a toolbox for user-optimization of systems, and the agency is increasingly moving towards data science, UX design and Machine Learning.

In KFST BI developed into a policy development tool and in the process built up a strong BI team with the expertise of four PhDs. They clearly distinguished their use of BI as a framework and Behavioral Economics as a discipline, permitting some claims for 'jurisdictional control'. They actively pursued a strategy of building consumer behavior expertise based on experiments. This makes particular sense in a context where much consumer regulation exists in other ministries with more traditional legal expertise. Here, "having your own evidence" is seen as a convincing basis for providing policy advice, creating better access into the system.

In STAR, BI is quite clearly subsumed in Behavioral Economics, because of the strong existing expertise and role of economists in the agency. Within the "evidence-based" strategy of the agency, random control trials are already valued. As such, the primary interest has been in nudging as a potential new policy tool, for which job market effects have yet to be quantified. Apart from a few early projects with BI consultants, STAR has largely been advised by academics in their research partnership. In ARBTIL, the agency has built up strong (quantitative) internal BI expertise, clearly distinguished from "hardcore economists" (A2) and developed a clear organizational plan for working with behavioral insights.

Expertise in Consultant-Administrator Relationships

The comparison of four agencies show how internal expertise mediates the influence of external advisers. As a case of scientization, it shows the introduction of science-based practices into administrative expertise. Three factors are prominent here. First, interviewees from KFST and ARBTIL - the teams with the most specialized internal expertise - highlight the importance of internal expertise in evaluating and using external consultants efficiently. Both cases stress that building internal expertise has meant the use of fewer consultants, but in being better able to define and limit projects. Second, most interviewees discussed the experimental diagnosis of BI as a key strength within the administration, though also a potential risk. Successful experiments,

regardless of quality, are key for the legitimacy of BI as a policy instrument, especially when it can be brought forth to parliament or the public. Experimental evidence is referred to by interviewees as "a superpower" in policy development, particularly arenas where others are not able to quantify their suggestions. However, the pressure to show "success" can be experienced as a preference to choose only "safe experiments". Third, the variation in organizational setups, and applications of BI, reveals the great flexibility of BI as professional project, but also its potential weakness in being coopted by bureaucratic pressures. Jurisdictional competition around the professional project also took place outside central administration to police the boundaries on what is acceptable BI practice. For example, central professional actors have tried to enforce the BE end of the BI continuum by saying "you do not become a 'nudge-expert' by being educated as graphic designer, journalist, anthropologist or communicator" (Hansen 2017).

Scientization has so far been suggested as a form of externalization, where academic advisors and scientific arguments play an increasing role as sources of policy advice (Christensen 2018). Thinking of 'content' as professional expertise, this case further illustrates their interplay in the introduction of science-based practices as administrative expertise. However, a turn towards 'mechanical objectivity' does not necessarily imply more policy authority to professionals. In fact, the public administrative quest for 'mechanical objectivity' and outsourcing of expertise can be explained as contradictory responses to the same "legitimation crisis" (Eyal 2019). Public pressures for the legitimation of public regulations create dialectic movements between the "scientization of politics" and the "politicization of science". This perspective brings into focus underlying mechanisms relating to problems of trust (legitimacy from expert judgement or facts) and extension (legitimacy from democratic inclusion or exclusion) that structure advisory systems in contemporary democracies. The administrative developments reported in this study indicate that BI, as flexible professional project leverages this development but also adapts to institutional trajectories and objectives, corresponding with an understanding of Behavioral Public Policy as contested and historically changing concept (Strassheim 2019).

As a form of administrative expertise, BI is both evidence-based, and imposes a behavioral vision of public policy. Evidence-based policymaking has been severely challenged (Sanderson 2002). Andersen and Randrup, for example, critique the political bias that can arise in reliance on randomized control trials at the top of the "evidence-hierarchy". They show how such trials better capture the effects of some policies. If intervention effect-times are short, they are easier to capture

in randomized control trials, leading to a potential policy bias against long-term initiatives. The UK setting, where BI initiatives have been most studied, has also been characterized by austerity politics, underscoring the importance of cost-reductions for the behavioral change agenda, but also for appreciating criticisms within this context (Berry 2016; Leggett 2014). Foucauldian critiques, have pointed out how BI makes the mechanics of human choice scientized and subject to disciplinary interventions (Jones, Pykett, and Whitehead 2013; Pykett, Jones, and Whitehead 2016). These criticisms are relevant to consider for studying the effects of BI expertise on policy advice, although these effects have not been the focus of this analysis.

Conclusion: Embedding expertise in public administration

Returning to the question of how external advisors have embedded BI as a new form of administrative expertise in public administration, the analysis reveals the complexity of disentangling consultancy influence in a concrete politico-administrative context. The premise for the investigation has been work in Policy Advisory Systems and the Sociology of Professions. Policy consultancy has been a blind spot for scholars, politicians and others concerned with the quality of policies that shape society, forming a more sizeable component of the work that happens within governments than the literature acknowledges (van den Berg et al. 2019). Within the four investigated agencies in the Danish central administration, BI academics and consultants have embedded BI within a general shift in politico-administrative policy. Several insights lend themselves when comparing the involvement of external advisers in the institutionalization of BI across the cases.

First, smaller consultancies and academics have played central roles in spreading policy ideas, both in assisting with administrative practice and in legitimizing approaches. This matches with the conventional account of policy ideas being introduced through experimentation and institutional fit (Hall 1993). It also mirrors findings often emphasized in conventional accounts of management consulting in public policy, wherein researchers doubt the extent to which the growth of consultancy in public administration reflects "efficient outcomes" (Armbrüster 2006:8). What is apparent across the four cases is that the same advisers contracted to provide services are equally involved in producing the reports that legitimize the use and usefulness of their expertise. This is an empirical point to keep in mind when attempting to distinguish between "policy-consulting" and "services contracting" in the PAS literature (van den Berg et al. 2019:13).

Second, rather than existing in separate spheres, there is competition between consultants and academics in providing expert work. In all cases we can observe the use of consultants or academics in providing legitimizing reports for the application of BI, as a "new" form of expertise, to policy and administrative work in that agency's policy area. Furthermore, as the cases of STAR and ERHVST illustrate, there exist organizational models for accessing external consultant and research work. Here the concrete determinants appear to be either the public budgetary constraints at a given moment in time (are funds available in research or operating budget) and the degree to which a public organization has available/strong internal expertise in the particular area. There were some claims that STAR problems were more "complex", increasing the necessity for academic rather than consulting expertise. While this competition might be particular to the expertise of BI that blends scientific and practical legitimation, it also suggests a more general trend where academics are increasingly under pressure to demonstrate the value of their research in applied practical settings (Williams 2018).

Third, the study shows how individuals occupying dual positions (researcher-consultants) and cross-cutting networks play important roles as early 'brokers' of ideas in public administration. The importance of such sphere-spanning professionals have been shown particularly in transnational settings (Seabrooke 2014), where the occupation of roles in dual settings allow for epistemic arbitrage to position the supply of new professional services. BI work derives value from, and for, more abstract and more applied knowledge domains (see the Editors' introduction to this symposium). Behavioral policy experiments require real-world testing necessary for scientific publication, and such testing can provide legitimation for the effects of policy decisions internally and externally in the administrative and political system, creating demands for consulting work.

Fourth, the power given to middle managers in agencies matter for the way ideas are converted to administrative practice, and for future demand for consulting services. This points to the importance of expertise in defining client-advisor power relationships. In all cases middle-management (office managers) appear to have taken the initiative, while internal capacity building has largely resulted in a refinement of BI to fit that particular setting. The account lends credit to the notion of middle managing bureaucrats being empowered to influence policy, including

through the introduction of ideas that reconfigures administrative expertise (Blom-Hansen et al. 2020), including how policy makers view the public.

Finally, these results must be understood in the context of a changing politico-administrative system. De-bureaucratization and effectivization policies have been salient across successive governments agendas and concern the power between the standing bureaucracy and political system and the disposition of human resources in light of the New Public Management business-orientation. As administrative expertise BI finds purchase within a general shift in innovation-policy, where innovation is seen as a political tool for effectivization. The fact that no BI teams appear outside the ministries central to these policies indicates that the policies are the central vehicles for introducing BI as a form of expertise in administrative agencies.

The case contributes to existing debates found in the literature on consultocracy or the scientization of policy advice. Where the consultocracy literature tends to emphasize the replacement of long-term civil servant work with short-term outsourced expert knowledge production (Ylönen and Kuusela 2019), here long-term civil servant work is being embedded and assisted through various external relationships. This emphasizes the importance of establishing the kinds of relationships that exist between administrators and consultants. Similarly, while science-based practices in administrative expertise might, on the face of it, increases legitimacy, it is not clear that this kind of professionalization leads to more authority in the system.

Ultimately, the embedding of BI is an example of ’regulatory science’ in governance. The rise of policy consultancy has been explained by politicization of the civil service, and emerging from a lack of trust between politicians and public administration (Suleiman 2003 in van den Berg et al. 2019). This coincides with similar explanations for transformations in public sector professions noted in the professions literature (Noordegraaf 2007). Here the paradoxes of (de)professionalization of “pure” professions and the simultaneous semi-professionalization of public managers are explained by a contest for control of professional practices. Both neo-liberal politics and bureaucratic administrative logics have worked against strong professional control, primarily through the use of evidence-based and outcome-oriented measures for cost- and quality-control (e.g. Pollitt and Bouckaert 2000). Reforms were initiated because “professional groups were seen as self-serving producer monopolies whose influence on the economy and society was negative” (Flynn 1998:19). This underscores the importance of understanding the dynamics

between parliamentary politics, public management, and administrative professionalism. Future research can delve further into the question of how changes in particular forms of bureaucratic expertise might be related to changes in the use of external advisers across policy system.

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Paper 2

Nudging the Norse: How experts connect across politico-administrative and expert ecologies to establish Behavioral Insight professionalism in public policy

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Abstract

This paper investigates the 'connective' and 'protective' strategies of Behavioralists, and their relative importance in relation to other factors to explain the partial success of Behavioral Insights in Public Policy. Drawing on an ecological approach to expertise, the paper compares the process of establishing 'Behavioral Insights' across public administrations and expert environments in Sweden, Norway and Denmark. The paper proposes the concept of expert ecology to investigate 'distance' between ecologies in which claims to authoritative expertise are made. The benefit of such a concept is that it allows for a structured comparison of professional projects in public administration that go beyond the public administration itself to include environmental factors. The analysis shows the importance of connections in national expert ecologies, and particularly that academic-professional networks within these, are crucial in fostering the necessary domestic demand and later in supplying the experts to fill new positions. These ecologies also have the effect of directing professional projects in certain directions, sometimes at odds with the transnational consensus.

Keywords: Connective professionalism, Behavioral Insights, Comparative Public Administration, linked ecologies, sociology of expertise

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1. Introduction

Rather than 'solutions looking for a problem', professional projects are sets of diagnosis, inference and treatments looking to process 'problems' through their particular perspective (Abbott 1988;2005). One such professional project is 'Behavioral Insights', which casts policy problems as behavioral problems to be investigated and treated (OECD, 2019a; Ruggeri, 2019; Thaler & Sunstein, 2008). 'Behavioral Insights' have spread from its programmatic inception in the US and UK, not least through the activities of 'entrepreneurial' academics and policy makers, to become embedded in many public sector organizations, primarily studied in the UK, US, Australia, Germany and the Netherlands (Feitsma, 2018, 2019a, 2019b; John, 2014; Strassheim, 2019, 2021). The success of behavioral inferences depends on experimental infrastructures for data collection and interventions in organizations and existing policy specific expertise Behavioralists therefore depend on making connections within organizations to other professionals and with management to succeed. Further, they depend on reputation and standards in politico-administrative and expert environments to be seen as authoritative and useful. Behavioral Insights is therefore a great case for explicating the recent interest in 'connective professionalism'[1], particularly as it pertains to public administration and policy (Noordegraaf et al., 2014; Noordegraaf, 2020).

Recent discussions around the concept, have highlighted the common objective of professions scholars to understand the persistent and changing aspects of professional 'authority', 'autonomy', and 'expertise'. Connective professionalism suggests that these terms are being permanently reorganized in light of increased professional *interdependence* in occupational settings, and as a result of the erosion of traditional sources of authority. These developments illustrate well the tension between experts and expertise at the core of the sociology of professions and expertise as developed by Gil Eyal (Eyal, 2013, 2015, 2019; Eyal & Pok, 2015). Where the core image of professional expert autonomy sees it as a partial function of monopolistic control over abstract knowledge systems (Abbott, 1988, 2005b), the influence of expertise depends on a distributed network of actors, devices, institutions and concepts whose 'strength' dependents more on sharing

[1] The argument has not been received unanimously. Criticism of concept has been, amongst others, a lack of conceptual clarity confusing ideal types, an exaggeration of the proposed transformation from past to present and an uncritical alignment with existing positions within contemporary professional contests (Adams, Clegg, et al., 2020; Adams, Kirkpatrick, et al., 2020). In response to this criticism, Noordegraaf has admitted that the novelty of connective professionalism may have been overstated, but maintained the necessity to keep questioning core assumptions of 'protective professionalism' as a source of professional strength and to understand how "connected professionals can (still) act as autonomous and authoritative experts" (Noordegraaf & Brock, 2021).

and co-production (Eyal 2015; 2019). Thus, the authority and autonomy of groups of experts and their expertise need not be aligned.

The aim of this paper is to further our understanding of professional upheaval, but its starting point is that the discussion so far, has revolved around a limited number of exemplars analyzed without clarifying analytical assumptions. In this way, the paper is closer to the starting point of James Faulconbridge, when he touts the analytical strength of a 'sociology of expertise' in accounting for professional strategies that can simultaneously 'connect' and 'protect' (see Faulconbridge et al., 2021). Thus, even if scholars do not accept the diagnosis of 'connective professionalism', we are faced with a contemporary reality for professions, where technological change and the proliferation of more organizational forms of professional authority has unsettled older jurisdictions. It is the unsettling and changes of these jurisdictions, not necessarily their demise, that must be accounted for and understood and remain at the core of the discipline.

While we have good understandings of the tensions of professionalism in the public sector at the 'micro'-level of identities, ethos, standards, and positions, we know less about how these professionals operate more or less collectively across public-private divides, and how public sector professionals mobilize and connect to abstract bodies of thought. This is where 'ecological' approaches to professions benefit from an approach to professions focusing on the strategic action of experts in complex environments of multiple ecologies (Blok et al., 2018, 2019; Boussebaa & Faulconbridge, 2018; Liu, 2018; Liu & Halliday, 2019; Seabrooke, 2014a; Seabrooke & Tsingou, 2014). At the same time, as discussed further in the theory and methods section, the setting of the state upsets some of the analytical assumptions of 'ecological' approaches inherited from Abbotts 'linked ecologies' framework (2005). Drawing on Sida Liu's recent discussion of 'distance' between ecologies, the proposition in this paper is to think of an 'expert ecology' as a central basis for expert claims to authoritative expertise, and thus as shorthand for the configuration of interfaces between social spaces involving expert claims. The paper furthers this literature by developing an approach to studying the expert ecology, which focuses on the connectiveness across 'ecological' boundaries that are in play for a particular professional project to be seen as authoritative for diagnosing policy problems and suggesting solutions.

It illustrates this approach by answering the question of how emerging professional projects leverage factors in politico-administrative and expert systems to connect and establish themselves in public administration?

Public sector professionals are interesting not least because they have been the original source of both 'hybrid' and 'connective' professionalism theorizing (Noordegraaf, 2007; Noordegraaf et al., 2014). But also, because three trends highlight (but are not unique to) the transformation of public sector professionalism, particularly in Northern Europe. First is the longer-term replacement of legal professionals and career bureaucrats with other professional groups[2]. Most notable has been the influx of Economists and Political Science majors in public administration (Christensen, 2018; Hirschman & Berman, 2014). Thus, professional competition and coordination co-exists with other axes of bureaucratic rivalry (Dezalay & Garth, 2002; Liu, 2012). Second is the well-studied proliferation of 'private sector' management ideals, leading to 'hybrid' pressures on professionals adopting both bureaucratic management and professional identities and new occupations (e.g. the 'strategists' studied by Noordegraaf et al. 2014). Third is the digitalization of many public agencies and their service provision, leading to new coding professionals challenging human decision-making and professional discretion (Burrell & Fourcade, 2021). These latter processes, as have been observed elsewhere, interact in processes of standardization and evidence-based decision-making in bureaucratic organizations.

To answer the research question, the paper employs a comparative case study of Behavioral Insights in Denmark, Norway and Sweden to explain the unequal uptake of Behavioral Insights in Nordic regulatory agencies. Drawing on a population sample of organizations and associated documents, and interviews with strategically sampled agents, the analysis compares the development of BI across national expert and politico-administrative ecologies in the past 15 years, identifying the main factors associated with the spread of BI.

Several factors make Behavioral Insights an important exemplar of the ongoing debate. First is the explosive growth of Behavioral Scientists in public policy, marked with the establishment of

[2] I have the 'replacement thesis' from Vilhelm Aubert (see Hammerslev, 2010), which stresses that legal reasoning and professionalism has lost its importance relative to other social sciences (from the early 20th century onwards). However, this does not mean that there are fewer legal professionals, but that they constitute and ever decreasing percentage of professionals, and that legal rationality is transformed from being "value rational" based on legal formalism to what he calls "utilitarian or pragmatic rationality" as characteristic of other sciences.

the Behavioral Insights team in the UK in 2010 and since copied around the world. This growth means that BI can be seen as an emerging professional project. Second, BI exhibits a constant ambivalence of inclusiveness and closure in boundary work similar to other 'connective' exemplars. On the one hand, BI has been widely disseminated under a 'big tent' BI, where all organizations and employees can easily learn to apply standardized behavioral frameworks or experimental methodologies (e.g. OECD, 2019). On the other hand, particular skills and ethics are increasingly being stressed as central to Behavioral Scientists' particular professional approach (e.g. GAABS, 2020). The use of transnational standardization and networks makes the occupational position of behavioralists more actively professionalized than have present in other exemplars (e.g. Noordegraaf et al. 2014). Fourth, the success of behavioral inferences depends on experimental infrastructures for data collection and interventions in organizations and existing policy specific expertise. Behavioralists therefore depend on making connections within organizations to other professionals and with management to succeed, taking on professional 'brokering' roles (Feitsma, 2019b). The Nordic countries presents a particular useful setting for comparing the decisive factors to such professional projects with the absence of active state policies to promote behavioral insights. It thus becomes easier to identify the central elements responsible.

The paper proceeds as follows. In the next section I explicate the ecological approach that forms the basis for the analysis. The section after presents the methods and data used in the analysis, developing key indicators of ecological distance. The analysis consists of a historical analysis of the expert and politico-administrative ecologies, and identifying the main factors associated with the spread of BI. I end with a discussion of the connective and protective acts of Behavioral Scientists.

2. Expert ecology as a question of distance between social spaces

A 'processual' view of professions has been developed in the ecological tradition drawing on the systems of professions. Ecologies conjure a topological image of social space as consisting of locations and actors and links between the two (Abbott, 1988, 2005b). Andrew Abbot famously reformulated the study of professions to refer to jurisdictional 'locations' of control of work and actors competing and cooperating to control these locations. His critique of earlier approaches was that they overemphasized "form" (that is formal markers of belonging to a profession; credentials, association membership, education) rather than the content of professional work, "ignoring who was doing what to whom" (Abbott, 1988, p. 1). He proposed that the central concern of professions must be their control over specific work tasks and that the character of such control could be categorized according to six types of settlements.

In time, the meso-level character of this approach was recognized for paying too much attention to 'outcomes', favoring stability and change at the expense of action (Blok et al., 2019; Liu, 2021). Thus, the tradition has in recent years been extended towards the investigation of actions and processes as micro-foundations for explaining professional boundary work. For example, Liu has provided a processual framework for analyzing the (collective) actions of professions (Liu, 2013, 2018; Liu & Halliday, 2019). This work stresses that professions are 'things of boundaries', that they are constituted by their distinction from other entities and should therefore be studies in terms of three types of actions that create, maintain or change such boundaries: boundary work, expertise and exchange networks. Blok and colleagues have added types of boundary work in the study of jurisdictions-in-the making (Blok et al., 2019) as well as extended the framework to consider potential 'trans-local' jurisdictions (Blok et al., 2018). Seabrooke and colleagues have also extended the tradition towards actions of experts and professionals claiming authority in transnational networks (Seabrooke, 2014a, 2014b; Seabrooke & Tsingou, 2015). In other works, 'issue professionals' (Henriksen & Seabrooke, 2016) and 'organizational professionals' (Faulconbridge & Muzio, 2008) have revealed alternative axes of expert authority claims, from biographical experience with 'issues' in the former case to 'elite' organizational affiliation in the latter. Importantly the body of work, as a whole, stresses the (more or less) strategic actions of professionals in building alliances, networks and institutions to claim authoritative expertise. However, few of these studies have revisited the meso-level for how we can compare across areas of expertise and between countries.

What is needed is a simple and flexible framework for considering “the way expertise is defined in relation to the expertise of others” (a key question brought up by Faulconbridge et al., 2021) and how hierarchies and distinctions offers forms of ‘protection’ for professionals that might look different than in earlier time periods. This requires a model that more adequately captures the ways in which contemporary professions connect across ecologies, integrating developments in professions and expertise studies in ways that go beyond the limitations of the linked ecologies framework. To provide such a model, I draw on the recent work by Sida Liu in considering the proximity and similarities between ecologies as social spaces.

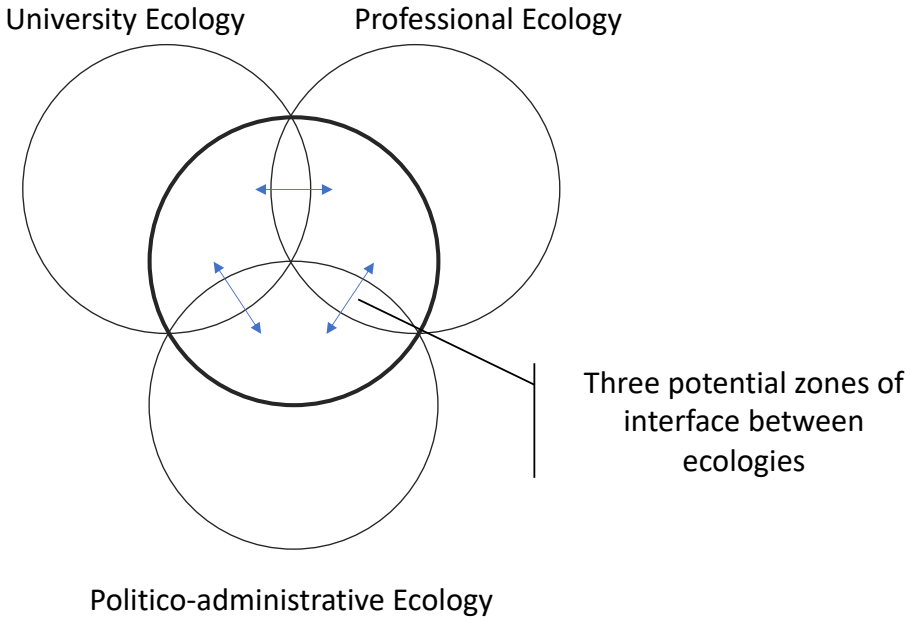
In his recent review of theories of ‘social spaces’, that is theories drawing on ‘field’ or ‘ecological’ metaphors of social space, Liu makes a number of interesting observations on the limitations of existing theories in terms of the ‘similarity’ and ‘distance’ between spaces and invites for further development (Liu, 2021). While Liu’s discussion of similarity is important and deserves more attention, it is not the focus here. Suffice to say that Liu sees limitations in existing field approaches for not paying enough attention to their different ‘social forms’ and interconnections, while also noting the limitations of Abbots linked ecologies framework for not providing a systematic account of how ecological topologies differ, making them appear monolithic and inflexible. Synthesizing across these observations he proposes a novel typology of space similarity, as ‘similar’, ‘symbiotic’ or ‘oppositional’.

Returning to the central concern with relations between spaces, that is ‘distance’, Liu reviews the range of existing attempt to capture some aspects of the complex relationship. These are familiar concepts such as 'field overlap' (Evans & Kay, 2008), 'interstitial fields' (Medvetz, 2012), 'Russian dolls fields' (Fligstein & McAdam, 2012), 'heteronomous fields' (Leschziner, 2015), 'proximate fields' (Lei, 2016), 'adjacent ecologies' (Block-Lieb & Halliday, 2017), 'overlapping ecologies' (Liu, 2017) or 'linking ecology' (Serafin, 2019). Discussing the differences and similarities between these concepts, Liu suggests that they are all attempts to conceptualize ‘distance’ between social spaces and suggest that these relationships can take three basic forms that I take to constitute ideal typical categorizations: ‘linked’, ‘nested’ and ‘overlapping’ spaces. What is interesting about this synthesis, is that it allows for a more nuanced investigation of how the ecologies in which experts and expertise circulate, and are recognized as authorities, intersect or not.

The first of the three forms, 'linked' ecologies, are defined as spaces that do not share actors or positions yet are connected by certain social relations and thus become proximate to each other (Ibid.). Liu largely models this on Abbot's conceptions of linked ecologies, in which ecologies maintain their endogeneity, but can be connected by common issues ('hinges') or related actors ('avatars'). While actors can move across linked spaces, few actors occupy multiple positions in both, and relatively clear and visible boundaries are maintained. Overlapping ecologies are suggested by Liu as the most complex form of adjacent ecologies in which they share a common area and interpenetrate each other. Liu, discuss both Gil Eyal's 'interstitial fields' and Evans and Kay's 'architecture of overlapping fields', but suggests that to advance an understanding of overlapping spaces, it is important to clearly identify actors and positions in the common area between them. Nested spaces refer to the form in which one social space is fully embedded in the other, although unlike in 'strategic action fields' (Fligstein & McAdam, 2012) embedded spaces are not assumed to be similar. Together, the typology suggests a multidimensional measure for distance between spaces. The consequence is that 'social distance' between ecologies can become a way to understand and investigate the relationships between the settings in which actors make authoritative claims to expertise, and the connective and protective actions taken to move across them or insulate them from each other.

The proposition in this paper is to think of the 'expert ecology' as a shorthand for the configuration of interfaces between social spaces involving expert claims, and thus as the basis for actors to claim authoritative expertise. The question of connection or distance between relevant ecologies becomes the empirical question that defines the kind of expert topology of particular areas of expertise. For example we can think of European 'security expertise' as historically located in linked university and politico-administrative ecologies, but increasingly in overlapping ecologies with modern 'National Defense Universities' as shared locations in common areas (Libel, 2019). Importantly, the framework is flexible in terms of which ecologies are to be included in the analysis. The particular analysis of BI pursued here suggest that three ecologies are the most relevant: the university ecology, the professional ecology, and the politico-administrative ecology (see figure 1). What becomes central to understanding the spread of BI in public policy is then to see the interfaces between the politico-administrative ecology and other ecologies in the expert ecology. The following section provides a method for how to study these ecologies and links in more detail.

Figure 1 – Expert ecology as the configuration of interfaces between social spaces involving expert claims



It is important to maintain that the interfaces between ecologies are the results of actions and movements by actors, in turn affecting the social topography of expertise. This stresses the importance of the kind of processes and actions already identified in the literature such as boundary work, diagnosis, or exchange. In the focus on actors and locations that Liu advances, we should not forget that experts and expertise signify two compatible but different approaches to power and influence. This difference means that a body of expertise can be influential and authoritative, while individual experts or collective expert organizations that mobilize the expertise may not themselves be autonomous or influential. By building a comparative framework it is possible to consider these ideas topologically in social space and compare.

To take BI as an example that I explore in more detail throughout this paper, we might think of BI as a 'professional project'[3] emerging and coalescing around 'Behavioral Scientists' in the

[3] A professional project was by Larsson (1977) seen as a form of collective action of professionals to vie for social closure. Abbott operates with a similar concept, with professional groups pursuing strategic projects of carving out legitimate expert control over specific work tasks via competitive intra- and inter- professional relations and the forging of broader cultural, educational, and political alliances. While this view is similarly competitive, it is also open-ended. Competition '…can be in many dimensions, over many things, with many different groups' (Abbott, 2005a). The ambition behind the term expert ecology is to specify these dimensions in more detail.

university ecology. To establish diagnostic-, inference-, and treatment authority over 'behavioral change problems' these academics sought to establish connections ('hinges') to professional and politico-administrative ecologies. While initially such connections would consist mostly of individual research projects, producing 'dual rewards' in either ecology, over time hybrid locations would coalesce around 'Behavioral Insights Units' in and outside government. In different national setting, linkages between ecologies evolved or failed due to endogenous factors in each ecology (their 'natural histories'), impacting the degree to which behavioral scientists were able to establish themselves in public administration. Similarly, attempts to establish boundaries in the ecology around behavioral jurisdictions has taken different forms depending also on entrepreneurial actions to link the professional and university ecologies, and in delivering private sector expertise to public institutions. These historical processes of ecological configuration lead, in this case, to three different historical topologies of behavioral expertise in Denmark, Norway and Sweden.

To summarize, the approach provides a comparative method for studying meso-level change. The topology of expert ecologies is seen as an empirical question of connections between ecologies. What becomes central to analyzing the spread of a particular kind of professional expertise in public administration, in this case BI, is to see how this expert system interfaces with the politico-administrative system. Together, endogenous factors within these ecologies affect the uptake and trajectory of BI as a professional project and organizational script. At the same time it is worth noting that ideas and people move between national expert ecologies and that linkages to transnational ecologies play a role in how many national ecologies operate (Blok et al., 2018; Fourcade, 2006).

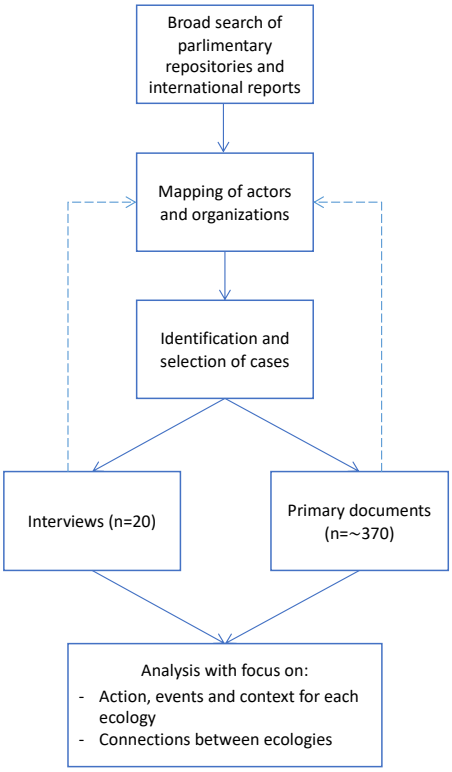
3. Methods and data

The paper employs a most-similar case design between, Denmark, Norway, and Sweden. The countries are similarly located in Northern Europe, sharing linguistic, cultural, and political characteristics. They are all Social Democratic welfare states with universal health care (Esping-Andersen 2015) and wealthy coordinated market economies (Hall & Soskice, 2001). In terms of public administration, they are broadly similar with some important differences in the organization of different aspects of public administration (see Greve et al., 2016). Neither country has had any national 'BI policy', and are thus interesting examples to investigate the dynamics

that shape the take-up of new expertise in the politico-administrative system in absence of explicit political priorities.

The analysis builds on a historical mapping and analysis of Behavioral Insights in the university, professional and politico-administrative ecologies, and particularly on the interfaces between them, in the past 20 years – see more below. For each ecology, in each country, I focused on a number of organizations identified in extant international reports (e.g. OECD, 2018) and government reports (e.g. Ramsberg, 2016) and iteratively tracked related organizations and individuals using 'snow-ball' sampling from interviews and documents (see figure 2). With particular interest in public sector professionalization, the mapping constitutes a population sample of all central public administration organizations utilizing BI, which has predominantly been independent agencies, as well as the professional networks, consultancies and research institutions related to these. I have also conducted interviews with civil servant and their partners in the university and professional ecology. Interviewees were strategically sampled according to their centrality in each ecology.

Figure 2 – Data collection strategy



The politico-administrative ecology differs from the Abbot's political ecology, in that public administration is organized around customary political and administrative issues. Thus, while Abbot's concept of 'bundles' might be well suited to characterize parliamentary struggles for political influence, public administration and institutions are not necessarily structured along the frontlines of these political debates. We might therefore think about administrative units as engaged in more or less cooperative forms of collaboration or competition within a wider political context. The politico-administrative context and policies, such as changing governments, is always of importance to the role of professions in the state. For each country I gathered all publicly available reports on behavioral insights at government and parliamentary level and identified all central-administrative units or agencies with either single projects (such as a behavioral interventions or policy reports) and/or long-term BI units.

In the university ecology I identified the main research centers for Behavioral Science, and particularly Behavioral Economics, and associated academics. I focus on identifying where they are located, where they do projects and when they were established. In terms of the state-university interface I look at the number and character of partnerships or collaborations between them.

As other studies of professions in Europe have highlighted, the notion of 'professional ecology' does not travel completely unchanged from its Anglo-American origins. In Abbot's theorizing, a 'market ecology' (or private sector ecology) is amalgamated with the professional ecology, because American professions are predominantly integrated through markets and market competition, which deviates somewhat from Scandinavian and central European institutional histories (Pedersen et al., 2020; see also Fourcade, 2006 for a comparison). Thus, to map the professional ecology, I gathered an overview of all private consultancies and proto-professional organizations and networks for each country by snowball sampling through online professional networks, documents and interviews. I use this overview to understand when these organizations emerge in each national context, how they define their expertise and their main type of clients.

For each country I conducted a historical analysis of the development of BI in each ecology and particularly the connections between them in terms of actors and actions. In the next section I present this analysis for each country, before summarizing it in a structured comparison by

providing indicators of distance that are summarized in table 1. For example, in terms of the university-professional interface I look at the number and character of academic consultancies and cross-cutting networks. In terms of the state-professional interface I look at the number and character of consultancies in government projects and careers. Finally, in terms of the academic-professional interface I look at the number and character of researcher-professional interactions, education opportunities, collaborations etc.

The approach has some limitations. The first is confirmation sampling. There is a greater probability of public and private organizations reporting on positive experiences with BI and successful overtures rather than rejections. This means, that even though there are examples in the records of some organizations and actors being more successful in establishing BI as a professional project than others, there are no sources of 'active dismissal'. Second, there is limited data on 'behavioral scientists' professional careers (prosopography) and the wider distribution of social science professionals and careers in Nordic public administrations. This makes it harder to draw generalized conclusions of the kinds of occupational settings in which BI has found success in and is an obvious area for further study. Third, the interconnections between politico-administrative, professional and university ecologies are hard to monitor when they happen below a certain monetary or activity threshold. By focusing analytically on the historical and institutional processes of change, the effects of these shortcoming should be limited, but a more comprehensive study could expand.

4. Analysis

Before diving into national trajectories, it is worth providing some background to the spread and origins of BI in a transnational setting. BI has a background in the university ecology, particularly in the US, with the institutionalization of the subdiscipline of a 'new' Behavioral Economics in the late 1980s at the interface with economics, psychology and cognitive sciences (Sent, 2004). The new research program, manifested in 'prospect theory' and the 'bias and heuristics' framework of Kahneman and Tversky, started from the 'homo economicus' rationality assumption that characterized mainstream microeconomics and analyzed systematics departures from this assumption. The popular scientific breakthrough came with Nobel prizes at the turn of the century to prominent behavioral economists.

A common reference point in describing the move of Behavioral Economics into more professional policy applications is Richard Thaler and Cass Sunstein and their book "Nudge" from 2008. In popular discourse, the book established moral foundations, 'Libertarian Paternalism', and a standard treatment, 'nudges', for behavioral problem-solving. But the authors were also actively establishing links outside of academia. For example, Sunstein worked in the Office of Information and Regulatory Affairs in the Obama administration from 2009 to 2012 and used the position to introduce BI, while Thaler served on the boards of a host of new professional service organizations. One of these organizations was the 'Behavioral Insights Team' set up in 2010 in the United Kingdom. The organization began as an internal policy unit in the British Government to apply 'insights from behavioral science to policy'. It was later spun out of government to be established as an independent consultancy firm with close ties to government and has since operated around the world, while 'Behavioral Insights' became synonymous with a general approach to public administration in and outside the UK (Halpern, 2016).

What this highly stylized sequence of events illustrates, is that the term 'Behavioral Insights' is an alliance-building metaphor and inclusive definition of professional expertise, set to advance and delineate its use outside of the academic sphere. While Behavioral Economics refers to the interface with economics, psychology and cognitive sciences in the economics discipline, Behavioral insights maintains the interdisciplinarity of mixing "traditional economic strategies with insights from psychology, cognitive science and other social sciences to discover the many "irrational" factors that influence decision making" (Lunn, 2014). Thus, BI implies the use of experimental methods to identify patterns of behavior, and using these findings to inform policies and regulation (OECD, 2017). According to official discourse "It is about taking an inductive approach to policy-making, where experiments replace and challenge established assumptions based on what is thought to be the rational behavior of citizens and business" (ibid.). In practice though, BI exists on a continuum from design and user-driven approaches (e.g. Behavioral Design) to hypothesis-data-driven approaches (e.g. Behavioral Economics) which have later been subject to more boundary work. While processes of diagnosis are similar; using behavioral process models to diagnose policy problems, and while both ends of the continuum stress the testing (and evaluation) of interventions via experimentation as important, thoroughness and scope differ vastly. Inference is most often based on lists of behavioral biases but can again be more or less sophisticated. Finally, BI offers several treatments, but particularly 'nudges', in the form of

interventions in the 'choice architecture' of citizens, have yielded popular and often cost-saving results.

International and regional organizations earnestly began picking up the BI agenda around 2013, and have been an important nexus for BI professionalization, by standardizing BI approaches to problem-solving and publishing 'best practices' that have been used in professional contexts in and outside public administration. For example, though EUs Joint Research Center had supported BI research prior, it published its first report, targeted at EU policy-makers and bureaucrats, in 2013 (Van Bavel et al., 2013). The same year OECD's Directorate for public governance (center for regulatory policy) started working with BI (OECD, 2019b). A standardized 'toolkit' (BASIC) was published in 2019 in collaboration with Danish researcher-consultants (OECD, 2019a).

In some ways the trajectory of the transnational professional project of BI is mirrored in national contexts. In all three countries, academics are among the early movers and adopters in university settings and play crucial roles in creating and driving the expert ecology. Similar to the dynamics noted by Blok and colleagues, transnational organizations have also had a legitimizing and standardizing function for local partners (Blok et al., 2018). Furthermore, national and international networks have played key roles in bridging occupations in and outside government. At the same time, national ecological factors have been important for shaping the emergent expert ecologies.

The following analysis has a particular focus on the connectedness between ecologies. For each country it presents a stylized history of the emergence of BI to put focus on the most important enablers and barriers to these connections. The national trajectories are summarized in the end, showing kind of quantitative and qualitative differences between countries, and the key enablers in each country. The analysis is particularly concerned with tracing forms of 'BI teams' in government. While such teams should not be considered as equivalent to the influence of BI as a form of expertise (Sunstein, 2014) they are a very good indicator of the spread and form of BI professionalism. In this sense, producing reports or making recommendations that rely on behavioral reasoning, making partnerships with BI organization and finally, setting up permanent BI organizational units, are consecutive indicators of ecological integration and professionalism in the politico-administrative ecology. Thus, the study of the spread of BI professionalization in public administration should not be confused with the distribution of behavioral 'ideas' more

generally, or the extent to which governments ‘nudge’. It is a study of the extent to which public administrators self-consciously nudge and apply behavioral insights.

Denmark

The initial growth of BI in Denmark began with expansion and alliances coming from the university ecology. The main centers of applied academic research were, and remain, at Roskilde University (Institute for communication and what became ISSP), the University of Copenhagen (Department of Economics) and Copenhagen Business School (Department of Marketing, and what became CBIG in 2018). However, researchers at RUC were the first to actively begin forming more permanent connections and expanding alliances across ecologies.

At Roskilde, researcher(s) established the ‘Danish Nudging Network’ in 2010 to connect interested professionals across academia, business, and the public sector. The network served as an inception point for many ‘students-to-become-behavioralist’ careers in the public sector, and initially shared their experiences and the newest developments in the field through network meetings and ‘nudge masterclasses’ organized with RUC researchers. The network has later become more professionalized, for example by establishing a ‘basis education’ in nudging and behavioral Insights for professionals, anchored in the research environments at RUC and ISSP. Importantly to the development in Denmark, the network was quickly enmeshed with the hybrid research-consultancy ‘INudgeYou’ with which it shared management.

At the same time a broad set of professional consultancies grew up catering to public and private clients since 2011. Among these can be mentioned Kl7 (established in 2011 and now part of Implement consulting) and less niche economic consultancies such as Copenhagen Economics and existing professional service firms such as PwC. At the same time, many former marketing professionals and bureaus also relabeled themselves as ‘behavioral consultancies’ (e.g., Brave or ‘The Nudging Company’). These consultancies played a central role in popularizing the use of Behavioral Insights in the public sphere, and in catering to private organizations and some municipalities. They also played a role in bidding on government projects and assisting in some BI team organization. In this way they have established a role of BI in professional services and careers for BI graduates. However, they have a less of a strategical impact on professionalization in the state.

INudgeYou and DNN with their academic credentials, were essential in fostering professionalizing developments in the politico-administrative ecology. Important antecedents to these developments were existing innovation units in government applying 'design thinking' and qualitative research (see e.g. Carstensen & Bason, 2012). These were enrolled in early alliances with 'big tent BI', and where virtually coopted with BI in early designations(OECD, 2018). Later however, there was some pushback in the community against more anthropological or qualitative approaches and 'superficial' marketing backgrounds masquerading as 'Behavioral Experts' (e.g. Hansen, 2017).

Inspired by the first BI team in the UK, in 2011-12 InudgeYou initiated projects in two agencies under the Ministry of Economics and Business Affairs, the Business Authority (ERVST) and Consumer and Competition Authority (KFST). These initial projects grew into more permanent professional structures in both agencies. In ERVST, BI was developed with a strong affinity with the Mindlab tradition of Business development, rooted in existing professional backgrounds. Here, a long-term partnership developed with a small behavioral consulting firm, providing specialized behavioral expertise when necessary. This also meant that BI was less secure and used as part of a toolbox for user-optimization of systems. In KFST BI was developed into a policy development tool and in the process was built up a strong BI team, which by 2019 included four Behavioral PhDs with links to the DNN network. The BI team in KFST stressed the benefit of "having your own evidence" based on experiments as a convincing basis for providing policy advice and saw it as a key resource in competition with the existing lawyers in the organization and more classical economic analyses coming from competing bureaus (Interview 1-3).

By 2015 and 2017, and coinciding with larger reforms to their portfolios, the agencies of Employment (STAR) and Work Safety (ARBTIL) respectively became open for BI expertise. In STAR the first BI-consultancy work took place in 2015, with a central researcher-consultant enrolled into the policymaking process (Interview 7). In the following years, niche consultancies were routinely hired for limited Behavioral Design projects. However, STAR, with a strong internal presence of Economic and Labour market expertise and with existing relationships with universities, did not pursue BI as an internal organizational model (Holmlund, 2015; Kvist, 2015). Rather, together with Behavioral Economists from the University of Copenhagen they developed and funded a research center on labour market behavior as a form of external BI unit. This development is interesting because the research center could be seen occupy a dual position in

two ecologies much like InudgeYou. In ARBTIL, a specialist BI consulting firm was hired to assist in setting up the new team and develop a prioritization and diagnostic tool (Interviews 8 & 10). The first months were spent on connective activities; spreading knowledge of BI, creating ambassadors in the organization, and creating a project-framework for prioritizing ideas from the operating core. The team built up strong quantitative BI expertise, clearly distinguished from "hardcore economists" and developed a clear organizational plan for working with behavioral insights (Interview 9).

Previous research has shown the importance of middle-manager buy-in for these professional developments. This is particular so because the success of BI teams requires reorganization in order to create pipelines for project ideas and experimentation. Thus all these individual trajectories tend to follow a similar process of beginning with alliance building and general 'behavioral' education to establish awareness throughout the organization. Then some kind of organizational framework is establish to standardize practices of collecting problems from the organization and prioritizing these with management. These frameworks tend to emphasize the existing expertise in the organization, but create an important mediating role for the behavioralists.

Taking stock, we see the expansion of BI across the danish expert ecology in the period under study. Several key enablers have been central. First have been the spread of several multi-ecological organizations and alliances: research-consultancies, applied research centers, and long-term consultancy collaborations. Many of the early BI developments happened in partnership with a central researcher-consultancy, InudgeYou, which much later has begin projects with both the Danish Health Authority and Environmental Protection Agency. Connection through the DNN have similarly been important for general education and hiring networks. Together with developments in the professional sphere, they have created a space in which positions in the university and politico-administrative ecology have become more connected, with behavioral doctoral candidates moving into public administration. At the same time, politico-administrative reforms and middle managers have been central because of the investments needed to transform organizations for BI to be effective, here the co-option of existing governmental 'innovation units' and their staff played a key role.

Norway

In Norway the expansion and alliances from the university ecology came later and were more limited than in Denmark. Similar organizations, such as the 'Choice Lab' in the university ecology and 'Greenudge' in the professional ecology did not initially pursue, or were not able to pursue, the same strategies as in the Danish case. While this might be interpreted as a case of 'late adoption', there are more indications of friction in the politico-administrative system, which suggests that a BI expert ecology might not have the same prospects.

In the university ecology, the main centers of applied BI research have been the 'Choice lab' (now part of the 'FairTeam') at the Norwegian Business School (NHH) and at the Center for Consumption Research (SIFO) and the Cultural Selection and Behavioral Economics Lab (CSBE) at what is now the Oslo Metropolitan University[4]. The Choice Lab was the first to initiate behavioral experiments in the politico-administrative ecology, more precisely in collaboration with the Tax Authority in 2013, as well as to supply the agency with graduates for its later BI Team building efforts. Despite being a well renowned research center, their main collaborating partners where other research institutions and partners in the global south. Thus, the domestic focus was initially limited and it did not pursue the same kind of consulting to public sector as seen in Denmark before becoming part of the establishment of the 'Fairteam' research Center of excellence in 2017 (Interview 17). In this new funding structure, a 'Fair Insights Team' was modelled more consciously after the BIT organizations in the UK and Denmark (Interview 16). On this basis, FIT have started a variety of research projects together with NAV, the Norwegian 'Work and Welfare' Authority since 2017. However, these projects have yet to translate into organizing BI expertise within the authority.

At OSLOmet, research groups have been more focused within the university ecology and to a lesser degree on creating links to the professional ecology. SIFO for example initiated a 'strategic initiative' on BI from 2013-2015, with a series of consumer-research projects and presentations, ending in a conference (SIFO, 2015). While BI has continually been applied in the centers research and lasting connections were established to the organization 'GreeNudge', there are no indications of more widespread connective actions to the politico-administrative ecology. The Center for Cultural Selection and Behavioral Economics was established at the faculty of health

[4] The university was established through mergers of existing research and educational institutions in 2014, 2016 and 2018.

in 2015. Some researchers at CSBE took the initiative for the 'Norwegian Nudging Network', inspired by its Danish counterpart, but despite initial interest the network did not succeed in connecting very far outside OSLOmet and is more or less on standby (Interview 18). A partial explanation for this development may be found in the fact that the center has been more squarely placed in a psychological disciplinary approach called 'Behavior Analysis' and thus have not whole-heartedly embraced the BI professional project and conducted little applied research on national policy and administration.

The Norwegian professional ecology has seen fewer private consultancies than in both Denmark and Sweden. In the ecology, the earlies BI organization is GreeNudge established in 2011. For the first five years, the organization existed as philanthropic initiative under the 'Stordalen foundation' and their objective was to fund behavioral studies on climate initiatives through collaboration with research institutions and the private sector (GreeNudge, 2012). In 2016 GreeNudge transitioned into more of a research-consultancy hybrid, that more closely resembles 'InudgeYou' in the Danish case, although it maintained a focus on health and consumer behavior and ultimately has not had the same bridging effect to public administration. For example, while it was initially led by Knut Ivar Karevold, an Organizational Psychologist, the leadership was transferred to Samira Lekhal, Chief Physician at Helse Sør-Øst, a leading expert in Norway on nutrition and lifestyle diseases. Thus, what characterizes the team at GreeNudge is that many have dual positions in the university ecology, for example at SIFO (GreeNudge, 2018), but that their activities have not been focused on establishing Behavioral Insights professionalism in the politico-administrative ecology at a national level. Ultimately, PwC as one of the few professional service firms now trying to occupy the ecology, acknowledges that "Norway has not come far in the use of behavioral science" (PwC Norway, 2019).

It may then come as no surprise that the use of BI in the Norwegian central administration is less widespread and has come later than in both the Danish and Swedish case. The notable exceptions are the Norwegian Tax Authority (SKATT) and the Norwegian Labour and Welfare Administration (NAV). SKATT was an early mover, conducting behavioral experiments in 2012-2013 together with the Choice Lab, and has strengthened its BI expertise since 2015, building a behavioral team and capacities (Interview 15). This professionalization has been supported by managers with inspiration and legitimacy coming from work in OECDs transnational forum on tax administration (see e.g. OECD, 2021).

More recently, NAV has hosted a series of research projects with the Fair Insights Team (new choice lab) since 2017, that in some ways resemble the development in the Danish counterpart STAR. These projects have been mainly funded through NAV 'research grants' that follow a yearly call for applications, and are based in the research arm of NAV. However, while there is some optimism in the agency towards integrating BI in a more structured fashion, there is also significant pushback from legal professionals and existing social researchers connected to the use of RCTs (Interviews 13, 16 & 17). This explained as due to interpretations of the differential treatment of citizens as unacceptable legally and ethically.

Overall, the Norwegian BI expert ecology remains largely centered in the university ecology with fewer linkages to the politico-administrative and professional ecologies. Some of this can be explained by fewer examples of purposeful strategic action on the part of professionalizing agents in creating alliances and multi-ecological spaces. When asked to explain the causes of BI expansion in SKATT, interviewees pointed to two central factors: middle-management and the legitimizing and supporting role of the OECD Forum on Tax Administration. In the establishment of the new BI team, the supply of PhD and master candidates from the Choice lab was key in making this professionalization viable. Public sector 'demand side' factors might also include the structural barriers exist in the absence of precedence of public sector innovation and experimentation initiatives. For example, working experimentally is not widespread in the Norwegian central administration. This is evident from several 'public inquiries' since 2000. Of these, none references the use of experimental methods, excepts the Productivity Commission in 2014-15, stating that "...controlled trials have not been used systematically in public administration..." (Norwegian Ministry of Finance, 2016, p. 130). While Behavioral Insights are mentioned and positively presented in national budgets in 2015 and 2016, there is little evidence of this resulting in initiatives outside those mentioned. Some changes have come about with a new the focus on public sector innovation policy since 2019, but this focus has primarily been towards funding bottom-up initiatives rather than through founding units or professionalization strategies.

Sweden

In Sweden, BI alliances and connections are more diffuse. In the public politico-administrative ecology, despite indications of early circulation, genuine growth has come much later and in the face of significant ideational transformations in lieu of professional contestation. At the same

time, these developments seem to reflect a relatively stronger presence in the professional ecology in comparison with the university ecology.

The Swedish university ecology has no examples of applied BIT research centers like Denmark and Norway. While individual researchers have been involved in various projects in the politico-administrative ecology, centers oriented towards applied behavioral economics emerge relatively late. The Center for Behavioural and Experimental Economics at the Economics (CEE) department at Gothenburg University was formed in 2016, and has researchers involved in two research projects in public administration. Other researchers involved in policy and consultancy outfits are located at the Center for Media and Economic Psychology at SSE, which is primarily focused on the private sector, and at the Departments of Economics at Stockholm University and Uppsala University.

Like Denmark, Sweden has seen a significant growth in the number of specialized behavioral Insights consultancies generally oriented towards the private sector. For example, Impactually (est. 2017), Nugd (est. 2019), Beteendelab (est. 2016), and Nudgingbolaget (est. 2019). Like in the Danish case, the consultancy that has had most success in working with the central administrations, is the researcher-consultancy 'Impactually'. Established in 2018, Impactually is the most centrally placed organization in the Swedish network of Behavioralists. The company has done consulting for several public and private agencies and is mainly run by two researcher-consultants. One has a background in Behavioral Economics from Copenhagen, pursued a post-doc at Gothenburg University and returned to the Economics Department at the University of Copenhagen at the Center for Economic Behavior and Inequality, while the other is completing a PhD at the Center for Media and Economic Psychology.

The 'Swedish Nudging Network' was created in 2014 and is an active facebook group and online network. The network was formed with direct inspiration from the The European and Danish nudging networks. While a core social group interacts through the network, the network does not host many events nor has it established BI educational modules. The initiators behind the network now run Beteendelabet, which does sell BI training and workshops.

Overall, the links and networks across ecologies have been more tentative and with few actor movements before 2016. For this reason, developments in the politico-administrative ecology

have been more piecemeal and driven by independent initiatives. Until 2020, the Swedish Tax Agency and the Environmental Protection Agency have been the main locations of activities[5]. In 2016 the 'expert group on the studies of public economics' (ESO) published a report evaluating the status of BI across public sector organizations (Ramsberg, 2016). The report concluded that while several agencies had shown "interest" in behavioral approaches, none were applying them systematically in their work. Further, the report saw great potential in "behavioral interventions" and recommended the implementation of BI across the public sector, or at least a national plan for its development. However, there is no evidence that the report has had effect on national administrative or regulatory policy.

While the Swedish Tax Agency published a report on prospect theory and BE as early as 2005 (Swedish Tax Agency, 2005), very little professional activity took place before 2018. The report – written by a central civil servant later engaged with the OECD Tax Policy Committee and involved in formulating agency strategy – became a reference point in later strategy papers (Interview 19). It was part of an active managerial strategy from being a "feared tax collector" to a "liked service authority" – and thus part of an overall process of service design and 'citizen as consumer' orientation but not BI professionalization as such (Stridh & Wittberg, 2015).

In fact, the ESO report paraphrased earlier concluded that the agency, despite being at the forefront, "have not systematically evaluated effects of interventions" (Ramsberg 2016). Thus, when an OECD report in 2015 counts Skatteverket among the organizations "applying behavioral insights" this is in the limited sense of drawing on literature from the behavioral sciences in strategy development and not the methodology or approach of BI in policy development (OECD, 2015). Overall, while the Authority has been very early in engaging with behavioral science and using it to inform and legitimize its strategic transformations, there were few moves towards establishing a more coherent BI professionalism in the organization before 2017. Since then, the analytical unit has doubled its number of employees, many with PhDs, drawing more informal connections to the university ecology (Interview 20). During this period, external research projects with researchers from Uppsala University have been launched in 2018-21, and might lead to more significant developments (Andersson et al., 2021).

[5] Kronogfogden and The Pension Authority are also mentioned in some reports from 2012, but I have been unable to verify in interviews or documents.

The Swedish EPA has had a comparatively very interesting engagement with BI, in some ways developing its own 'flavor' of BI to suit its mandate. The Swedish EPA published the first report on BI and 'nudging' in the Swedish public sector in 2014 (Mont et al., 2014). While the report overall is positive towards some the potentials of 'nudning' and behavioral theory for increasing the effectiveness of existing regulatory policies, it is also critical of its potential for the issue of sustainable consumption. It concludes that "One of the great limitations of nudging … is that it works more by affecting intuition and unreflexive processes, and less by changing attitudes, evaluations or knowledge levels" and that "nudging is not any well-developed theory… as the field of application develops, the need for a consistent theory becomes more apparent and acute (Mont et al 2014:74). This is perhaps because the report was written by researchers from the Institute of Industrial Environmental Economics.

It appears that this early report set the agency on a path in developing its own approach to BI. Thus in 2016-2019, the agency began its first BI projects in collaboration with researchers from the research-consultancy Impactually, the University of Copenhagen Economics Dept. and the Center for Behavioral and Experimental Economics at Gothenburg University (Gravert & Carlsson, 2019; Naturvårdsverket, 2019). What is interesting about the reports associated with these projects is that they grapple with the moral foundations and justifications of BI and nudging building on 'libertarian paternalism'. To this effect they develop a radical new concept, "the green nudge".

Rather than being exclusively justifiable in terms of maximizing individual utility, "Green Nudges" can be for the common good – that is maximizing the utility in the system, sometimes at the cost of individual utility. For example it is stated:

> *"..nudging is a behavioral solution to a behavioral problem. But what we focus on here is mainly nudging which is used to reduce the environmental impact, what we call a green nudge. Nudging in this context can then be seen as a behavioral solution to a traditional economic problem."*

The report goes on to report on a number of field experiments using "green nudges", underscoring the importance of evaluation through RCTs to reveal effectiveness. Having now undermined the original moral legitimation of nudging, the report draws on newer 'ethical guidelines' written by

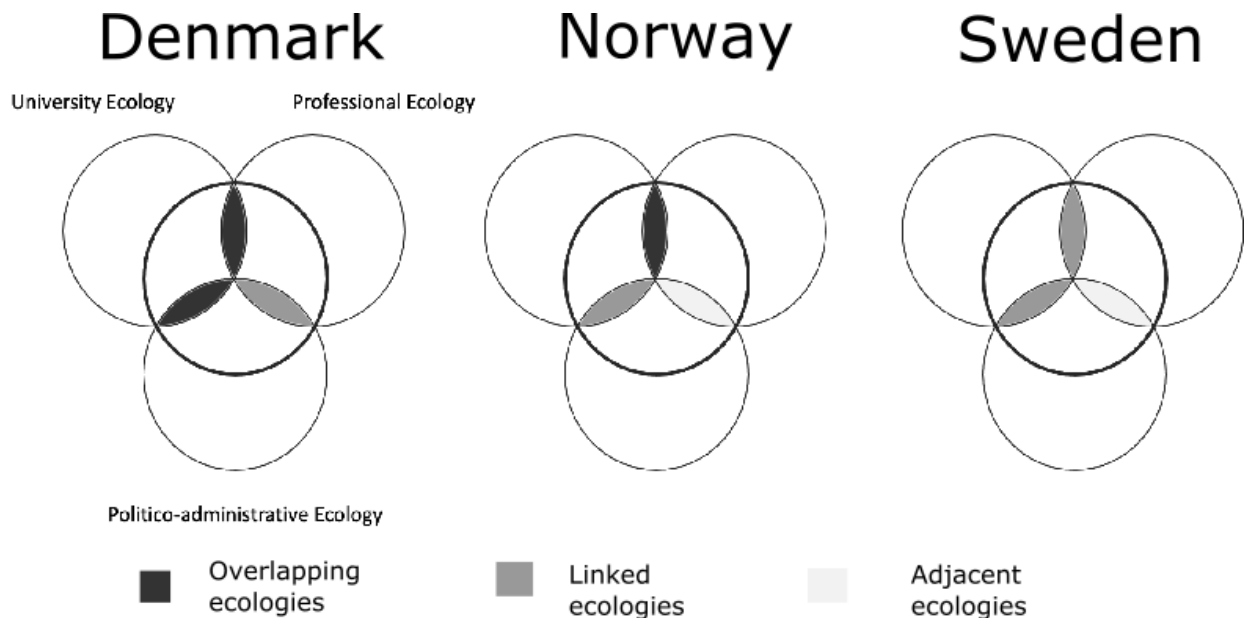
Sunstein and Lucia Reich on the ethical guidelines for nudging (2016), that nudges must, ‘have a legitimate goal’, ‘not be in conflict with individual rights’, ‘must correspond to individuals’ values and interests’, ‘must be transparent’, ‘must not take things without consent’, ‘must not manipulate’ and that the overall ‘benefits must exceed the costs’.

This is a very interesting development, and can be understood as a response to professional contestation in the work with existing bureaucratic or economic professionalism. Thus, apart from being a newer development in the ’BI’ sphere, it also reveals the lesser coherence in the Swedish BI expert ecology. Thus, by 2021, the main centers of activity in the national public administration were Naturvårdsverket and Skatteverket, with some early activities in the Public Health Agency together with Impactually.

Connecting the Ecologies

So how has the expert ecology been configured in the three countries? The distance between ecologies have been summarized in figure 3. In Denmark, while still in its infancy, an expert ecology is crystalizing in which movement across ecologies become more and more frequent, and less difficult to make. This is not least facilitated by organizations such as InudgeYou and CEBI that sit in more than one ecology. While a research center like CEBI might be analyzed as kind of avatar, leading to ‘dual rewards’ in the politico-administrative and university ecology, the Danish Nudging Network and InudgeYou occupy an overlapping space and facilitate professional mobility between ecologies. This same network of people have also been engaged in establishing more standardized ethical guidelines and dimensions for working with choice architecture. Particularly through the recent ‘Global Association of Applied Behavioral Scientists’ (GAABS) with a constitution, code of conduct and membership definition. While this attempt at transnational professional organizing falls outside the scope of this comparative study, it 1) points towards the future of the translocal project and 2) shows the maturity of the expert field in Denmark.

Figure 3: Comparison of BI expert ecologies in the three countries



Norway has seen later developments, but have copied some lessons from Denmark, though mostly at the level of applied research centers and not currently with significant alliances and overlap between ecologies (caveat: NNN). While this is in some sense associated with the lower level of strategic alliance building behaviors on the part of academic actors, there is also some evidence indicating resistance in the politico-administrative ecology. For example, the Norwegian state had not experienced a similar seeding of the administration by 'public innovation units' and has had little focus on encouraging experimentation in public policy. This is partly due to political reluctance at the government level, but also one suspects, with a more entrenched legal profession in government agencies (potential reference?).

Sweden has seen a significant growth in BI professionalism but mostly oriented towards the private sector. Here on the other hand, a significant The lessons from SKATT show how policy exchange (OECD) does not translate into professional change automatically. Miljøverkets points towards an interesting conflict in the meeting of BI and existing Swedish bureaucratic expertise. Here nudges do not fit the ideational agenda and a new concept the 'green nudge' has been invented which may open up more of a space for BI in the Swedish politico-adminstrative ecology in the future.

Table 1 represents these summaries as indicators used to gauge the distance between ecologies. In other words, 'distance' is relative concept and is here operationalized mainly in the form of interactions across ecologies and multi-ecological positions.

Table 1 - Indicators of Expert Ecology emergence

	Indicator	Denmark	Norway	Sweden
University-Professional connectedness	Professional network	Yes, since 2010	Yes, since 2015	Yes, since 2014
	- Focus on training?	Yes	No	No
	Academic-consultancies	Yes	Yes, since 2010	Yes, since 2016
	Global professional organization	Yes	No	No
	Research centers focused on private sector	Yes, CBS consumer	Yes, SIFO	Yes
	Specialized university education	No	Yes	No
Professional-politico-administrative connectedness	BI consultants on gov. project	Multiple	Minimal	Minimal
	BI consultants in public reports	Multiple	Minimal	Minimal
	BI teams in central administration	Yes, 3	Yes, 1	No
	BI professional network in central administration	Yes, although limited	No	No
University – politico-administrative connectedness	BI research projects in central administration	Many	Few	Few
	Academic-consultancies to central administration	Permanent, multiple projects	None	Intermittent, few projects
	Permanent research collaborations in central administration	Yes	No	No
	BI PhDs in central administration	Many	Some	Few

5. Discussion and Conclusion

The expert ecology approach outlined here is an attempt to integrate the central dimension of 'distance' between ecologies into the analysis of professionalization. Central to such analyses become the alliances and movements between ecologies, and particularly on the organizations or locations that sit in more than one ecology. The analysis is centrally geared towards comparison. While incorporating Abbot's linked ecologies, the approach remains open to both more and less connection than 'structural linkages'. It also shows the different relationship between state and professional ecologies at the level of occupation, which was missing from Abbot's framework in that his main explanandum was the formal accreditations of professions by the state. The approach maintains the insights that occupational groups always struggle in already existing professional environments, but that these environments look different depending on the ecology.

What the analysis has shown is that as an emerging professional group, behavioralists are caught in a balancing act between alliance building to establish themselves across ecologies and of delineating the core of their expertise in the face of occupational incumbents. In the university ecology, this depends on establishing homelands of 'multidiscplinarity' in the face of the mother disciplines of Economics and Psychology. In the professional ecology on building networks, training and certification that can expand its reach. In the politico-administrative ecology on showing the efficacy of behavioral approaches in the face of professional and legislative constraints.

What the comparison has shown is that professionalization in the politico-administrative ecology appears crucially to depend on 1) actors being able to bridge ecologies successfully, to introduce scientific authority as Business Intelligence, and 2) managerial support and resources for to establish organization infrastructures to place behavioralists in central coordinating positions. The latter factor appears to depend crucially on structural constraints in terms of resources and precedents, but also on the strength of incumbent professional groups and their priorities. These dynamics can have effect on managers endorsement of changing approach to the production of policy advice.

The analysis thus follows in the footsteps of other approaches to Behavioral insights as a change to the occupational landscape of public administration (see for example Feitsma, 2019a). Such studies tend to point towards the 'slow emergence' of behavior experts with great 'fragmentation'

in professional form. What I show, unlike these studies, is that the variability in such occupational changes depends on factors in the politico-administrative ecology itself, but also on the alliances and connections established outside the state, and the actions of agents in these ecologies to produce and introduce behavioral insights expertise to the public sector. In the cases compared here, unlike other international exemplars (UK, US, AUS, NL), these transformations have occurred without explicit government backing and largely at the level of administration, while leveraging opportunities in the political structures. We can thus reasonably speculate that these dynamics hold in other cases of professionalization without strong 'political salience'.

In many ways the approach advanced here is a response to recent debates in the Journal that are also at play in the studies of 'fragmented professionalization' referenced above. At the core of the debate is an underlying aspect of research on the professions that seems to cause continued confusion. Historically, two dominant paradigms have shaped the field of profession studies, namely a 'professionalization' literature (often represented by Larsson, 1977) and ecological approaches building on the 'system of professions' (Abbott 1988). Professionalization is a structural theory of how occupational groups transform into professions through a set of structural changes such as licensing, association, and code of ethics, while the systems of professions literature see professional groups as always existing in a dynamic ecological system responding to each other and vying for recognition from diverse audiences. The main potential disadvantage of the professionalization literature, that many others have noted, is the potentiality for researchers it to sanctify the historically very specific ways in which some professions have claimed collective authority. This leads to distinctions between an ideal group of 'classic professions' with coherent knowledge systems, standards, positions and identities, and other occupational groups sharing only one of more these traits as more or less 'fragmented'. In other words, it can create an image of historical social stability that precisely generates questions of hybridity and connectedness.

It is mainly this tradition that Noordegraaf responded to when he asserted that "mainstream views mainly combine what we call enforced forms of professionalism, i.e. well-regulated professional fields with enforceable methods and norms, with fragmented forms of professionalism, i.e. weakly regulated fields with little agreement on methods and norms" (Noordegraaf et al., 2014). The concept of 'connected professionalism' hinges on the past 'protectedness' and thereby solidity of professions in professions theory. Thus, in pursuing an assertedly 'processual' approach, Noordegraaf has inadvertently constructed a structural argument and distinction.

What this point towards, is the need for a better comparative instrument for comparing the connectedness and authority of different professional groups in time and space. The notion of expert ecology is a response to this need. The approach is methodologically open-ended, here I have used a structured historical comparison to establish processual validity, but we might also think in more synchronic approaches and network analysis. As such, this serves as a first exemplar for engaging more closely with the connections professionals inside the politico-administrative system have to the expert ecology more widely considered.

The analysis leaves the question of authority somewhat open-ended; is occupational 'strength' a function of connectedness in the expert ecology? While Abbott stresses that the ultimate source of strength of professionals is an optimum level of abstract knowledge secured through monopoly, Eyal has maintained that the strength of professionalism is a function of being connected. Rather than a case of 'protective connectedness'[6] (Faulconbridge in Faulconbridge et al 2021), where existing dominant professions connect to new 'technologists' to secure core jurisdictions while automating peripheral tasks (in turn enabling new jurisdictional expansion), this is a case of a new emerging professional project connecting with professionals and institutions to expand the demand and efficacy of its services. In this way, it represents well the dilemmas of connective authority and expertise.

Terrence Halliday argued that professional authority could be seen as a function the ability to link technical and moral claims to authority (1985). In this perspective, the case of Behavioral Insights is at first glance a trade of moral authority for technical. By pursuing more formalized, bounded, and circumscribed interventions, the Behavioralist becomes a processual expert. Such observations come with two important caveats. Firstly, the spread of BI is connected to the moral authority of evidence-based policymaking. This term has a way of transforming between situations and timeframes. This requires attention to the moments in which moral assumptions are invariably introduced. For example when behavioral experts go beyond their technical authority to make forecasts of 'Behavioural fatigue' that significantly forestalled more severe lockdowns in the UK and to a lesser degree the Netherlands (Sibony, 2020). The second is the degree to which we should lament decreases in expert authority and autonomy on the part of public sector

[6] Protective connectiveness might be interpreted as a particular form of boundary or exchange work (Liu, 2018)

professionals. This is one of the main messages from Noordegraaf's interventions, when he states that "it is more fruitful to acknowledge the fact that quality is secured in processes" and not professional autonomy (Noordegraaf and Brock 2021:231). This is also the behavioralist argument: professionals and experts have biases that they introduce in treatment and that we can solve through standardizing choice architecture, an argument shared with those pushing for algorithmic or predictive modelling in governance.

This paper advances a new concept of expert ecology that draws together a set of literatures on professional social spaces. The concept has been applied to a comparative study of Behavioral Insight in public policy, to show how the study of occupations in the state can benefit from an engagement with ecological 'distance'. The study has revealed the centrality of actors collaborating and competing across social space and how activities and actors' movements across social space establish connections enabling new kind of professional roles. In this example, actors in the academic ecology moving and connecting to adjacent ecologies have been a necessary condition for supplying BI expertise and professionals to government, while cooperation with bureaucratic managers seeing potential in lieu of political priorities in a competition for resources, have been central to establish more lasting professional positions and structures within the state.

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Paper 3

Pandemic preparedness systems and diverging COVID-19 responses within similar public health regimes: a comparative study of expert perceptions of pandemic response in Denmark, Norway, and Sweden

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Abstract

Background

National responses to the COVID-19 pandemic depend on national preparedness systems that must be understood as components of global public health emergency preparedness systems, governed and coordinated through the World Health Organization's 2005 International Health Regulations. The pandemic has raised the question of why countries belonging to similar public health regimes, coordinated through the same global system, responded differently to the same threat. Comparing the responses of Denmark, Sweden and Norway, countries with similar public health regimes, the paper investigates to what degree national differences in COVID-19 policy response reflect significant differences in the policy preferences of national expert groups.

Results

We employ a structured case comparison of Denmark, Norway, and Sweden to analyze their' politico-administrative pandemic preparedness systems and policy responses during the first wave of the COVID-19 pandemic. We use the results of an interdisciplinary expert survey completed in 2020 to analyze expert perceptions in two ways. First, we analyze expert perceptions of COVID-19 responses while controlling for national COVID-19 trajectories and experts' characteristics. Second, we analyze the distribution and effect of dominant global expert-held ideas across countries, showing the importance of dominant ideas for experts' perceptions and preferences for COVID-19 response.

Conclusion

The study finds no evidence indicating that COVID-19 policy variation between the most similar cases of Denmark, Norway, and Sweden are the result of differences in the policy preferences of

national expert groups. Instead, our study highlights the importance of other factors than cross-national expert dissensus for explaining variation in pandemic response such as the politico-administrative organization of pandemic preparedness systems. Further, we find that expert support for dominant ideas such as a 'focused protection strategy' is associated with consistent policy preferences across locational, disciplinary, and geographic affiliations. Recognition of the latter should be a part of future discussions about how global ideas of pandemic preparedness are diffused transnationally and embedded in national politico-administrative systems.

Keywords

Pandemic Preparedness, COVID-19, Expertise, Comparative Analysis, Policy Studies

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Background

Strengthening pandemic preparedness systems is central to reduce the impact of pandemics on vital societal functions (GPMB 2020). In many countries the COVID-19 pandemic has unsettled belief in the ability of existing preparedness principles and institutions to properly mitigate global health emergencies. Recent studies have highlighted significant variations in how governments have understood and acted upon the pandemic to minimize its consequences, resulting in large national differences in mortality rates and economic repercussions (Chen *et al*. 2021). Importantly, such policy divergences have crystallized despite the World Health Organization's (WHO) efforts to strengthen and harmonize national pandemic preparedness since the late 1990s (Sanford *et al*. 2016). The inadequacy of prior assessments of pandemic preparedness in predicting COVID-19 efficacy has already been documented, such as in the case of the 2019 Global Health Security Index (GHSI), which ranked the US and the UK number one and second in the world in relation to health security capabilities prior to the pandemic (Jasanoff *et al*. 2021). The predictions of rankings such as the GHSI have since received widespread criticism as a result of the US and the UK's initial COVID-19 responses (Dalglish 2020), displaying, in turn, a number of issues in the organization of established pandemic preparedness systems (El Bcheraoui *et al.* 2020).

A starting point for exploring these issues is to compare how globally configured pandemic preparedness systems governed and coordinated through the WHO's 2005 International Health Regulations were activated in countries with similar public health regimes (Greer *et al*. 2020; Karim *et al*. 2010). Recent studies have shown how countries with the same public health regime responded differently to the COVID-19 pandemic during its first wave despite similarities in health expenditures and health infrastructure (Béland *et al*. 2020; Chen *et al*. 2021). Such within regime variation has fertilized the ground for discussions about what types of public health regimes (democratic or authoritarian), and formal political institutions (federalism or presidentialism) best determine COVID-19 response and performance (Greer *et al.* 2020; Kavanagh and Singh 2020). While these determinants are highly useful for discussing the macro-politics of global health emergency response, they, however, provide little guidance for understanding COVID-19 policy divergence between countries belonging to the same public health regime.

A useful point of departure for understanding such divergence among most similar countries are the Nordic welfare states' different responses to the COVID-19 pandemic. Denmark, Norway, and Sweden engaged differently with the pandemic during its first wave despite sharing Social Democratic and Scandinavian welfare state models, health care organization, geography, corporatist traditions, levels of institutional trust, and high rankings in the GHSI (Denmark 8; Norway 16; Sweden 7) (Christensen and Lægreid 2020; Petridou 2020). Differences in the use of lockdown measures, face masks, testing, and COVID-19 response strategies raises the question of how countries belonging to similar public health regimes could respond so differently to the same biological threat.

In studying the policy process, policy studies have long recognized expert-based information as one of the most important factors for explaining policy outcomes (Weible 2008). More than just information itself, research in the tradition of Policy Advisory Systems (PAS) have underlined the importance of understanding the sources of policy advice, both within and outside bureaucracies, as always operating within particular 'systems' of policy advisors that vary between jurisdictions and change over time (Halligan 1995; Craft and Howlett 2012). In this framework, policy influence has been conceptualized as a function of location within the system and the type of advice being offered (Craft and Howlett 2013). Recent theoretical developments in the 'second wave' of PAS has transposed this framework to better grasp the 'context' and 'content' of policy advice (Craft and Wilder 2017). Particularly, issues of 'context' have led to an incorporation of key insights from the policy subsystems literature, shifting, in turn, analytical emphasis to the policy subsystem context in which advisory systems are situated. The basic idea is that the structure of policy subsystems, defined as the decision-making networks structured around policy issues, affect the influence and access of various sources of policy advice in important ways (ibid., Weible 2008).

The importance of policy advice is particularly salient in the policy subsystem of pandemic preparedness, where research on public health security have long emphasized the centrality of experts in the design and implementation of pandemic preparedness systems (Lakoff 2017). Here, effective policy making in response to complex health crises is highly dependent on expert-based advice and information (Rubin and de Vries 2020). Experts occupy influential positions within the subsystem, such as in public health agencies and advisory committees where they are involved in framing biological threats and defining policy measures to respond to them (Packer *et al*. 2021;

Pearce *et al*. 2020; Salajan *et al*. 2020). This makes them important gatekeepers for understanding variation between the otherwise esoteric, technical, and siloed national policy subsystems activated during the COVID-19 pandemic (Lakoff 2017; Rubin and Baekkeskov 2020).

Studies of responses to prior pandemics such as H1N1 in 2009 have highlighted the importance of expert norms for understanding different national responses to health emergencies (Baekkeskov 2016; Baekkeskov and Öberg 2017; Rubin and Baekkeskov 2020). Here, expert advisors enacted ideas about the pandemic threat, settled during preparedness planning and from past experiences, which shaped policymaking. Despite public health policy in the Nordics traditionally being described as what might be called a 'unitary subsystem', with centralized authority in public health agencies, dominant policy images coordinated through the WHO and high intra-coalition belief compatibility (Weible 2008), responses to the first wave of the pandemic saw conflicting expert visions and advice for the most appropriate national response strategy to the COVID-19 pandemic. In Sweden, in particular, these disagreements spilled out onto the pages of The Lancet (Claeson & Hanson 2021; Giesecke 2020) and in public signature collections (Dagens Nyheter 2020), pitting experts sympathetic or critical to the policies of the Swedish health authorities against each other. Globally, similar diverging positions of policy advice further crystallized with the publications and signature collections of the 'Great Barrington Declaration' and the 'John Snow Memorandum', which promoted opposite strategies to the application of non-pharmaceutical interventions like societal-wide lockdowns (Burki 2020). The existence of conflicting COVID-19 policy advice, in both the general public and in specialized research outlets, raises the question of the extent to which pandemic response divergences between countries belonging to the same public health regime are the result of differences in the ideas, attitudes, and policy preferences of national expert groups.

In light of these developments, this paper asks how countries within the same public health regime diverged in policy response to the COVID-19 pandemic and, given the central role of experts and expert-based information as a potential source of policy divergence, to what degree this divergence reflects important differences in the policy preferences within and between national expert groups?

To answer the research question, the paper employs a structured case comparison of the three Nordic countries Denmark, Norway, and Sweden, drawing on a mixed methods design. After

presenting the methods in more detail, the first part of the paper compares the three countries' politico-administrative pandemic preparedness systems and their responses to the first wave of the COVID-19 pandemic. The second part of the paper investigates to what degree these responses had support among and reflected dominant ideas held by national experts varying in disciplinary backgrounds and locations in the policy advisory system of pandemic preparedness. To do so, the paper presents and analyzes the results of an interdisciplinary and cross-country expert survey completed by 232 respondents from November-December 2020. It does this by, first, analyzing expert perceptions of national responses to the pandemic using a multidimensional response measure. Second, it applies an ordinal regression model to analyze to what degree experts' attitudes to their respective governments efforts to save lives of citizens are associated with ideational commitment among experts to 'focused protection' or 'community protection' while controlling for the locational characteristics of experts in the policy advisory system. The analysis is followed by a discussion of the relationship between dominant ideas in national expert groups and perceptions of COVID-19 responses.

The paper makes a substantive contribution to the existing literature on public health security in general, and the COVID-19 pandemic in particular, by examining and comparing attitudes and policy preferences for national pandemic responses among national experts belonging to similar public health regimes. When controlling for locational positions in politico-administrative systems, disciplinary affiliations, as well as demographic and sampling factors, we find that experts present in countries pursuing a suppression strategy dependent on non-pharmaceutical interventions such as societal-wide lockdowns like Denmark and Norway systematically perceived their country's COVID-19 response more favorably in terms of saving lives compared to experts from a country pursuing a mitigation strategy without the use of lockdown measures like Sweden. In light of our comparison of the three countries pandemic preparedness systems and the result of our analysis of expert attitudes to pandemic responses, we suggest that policy divergence is more related to politico-administrative factors than policy preferences among national expert communities.

Pandemic preparedness systems are defined as the set of institutions established to prepare and respond to infectious disease emergencies to mitigate their impact on systems critical to the functioning of society (Collier & Lakoff 2015). 'Preparedness' itself captures the idea that societies cannot prevent catastrophic events, like pandemics, but can prepare for them to mitigate

their consequences. This requires the identification of vulnerabilities through the enactment of imagined scenarios, the development of plans to handle potential emergencies, and investments in response capacities and equipment. Despite the fact that preparedness is often treated 'in potentia', the circumscribed systems are part of an emergency management cycle of anticipation, response and recovery that was activated during the initial response to the spread of the SARS-CoV-2 virus (Ramsbottom *et al*. 2018). The 'policy issue' of pandemic preparedness thus also demarcates the policy subsystem from which experts were sampled.

Since the late 1990s, the WHO has been instrumental in diffusing and standardizing the concept of pandemic preparedness across the world (Kamradt-Scott and McInnes 2012). The WHO has published several reports advocating pandemic influenza preparedness and has pushed its members to develop pandemic preparedness systems. Denmark, Norway, and Sweden established pandemic preparedness systems in the early 2000s, heavily influenced by the work of the WHO. As the WHO declared COVID-19 a "Public Health Emergency of International Concern" on the 31st of January 2020, these systems were set in action and later called into question when the three countries diverged on COVID-19 policy.

Methods

This study employs a structured comparative most similar case design to explain variation and similarity in pandemic preparedness systems and first wave COVID-19 responses in three similar countries, Denmark, Norway, and Sweden, with different COVID-19 response policies (George & Bennett 2005). The design consists of two parts, combined in a mixed methods research strategy, to avoid the risks of selective evidence sometimes associated with qualitative research, while yielding nuanced accounts that supplement statistical associations (Stubbs *et al*. 2017). The first part systematically compares pandemic preparedness systems and COVID-19 response strategies in the three countries. The second part subjects an expert survey on perceptions of COVID-19 response to quantitative analysis.

Structured case comparison

It is particularly useful to compare Denmark, Norway, and Sweden's responses to the COVID-19 pandemic because the three Nordic countries share many political, public health and social characteristics (Rubin & Beakkeskov 2020). The countries are similarly located in Northern Europe, making their populations exposure to fast-spreading infectious diseases such as COVID-

19 similar. They share linguistic, cultural, and political characteristics. They are all Social Democratic welfare states with universal health care (Esping-Andersen 2015) and wealthy coordinated market economies (Hall & Soskice 2001). The three countries are most often grouped together in 'welfare state' and 'actor-constellation-based' typologies of public health regimes, although one recent 'institutional design' typology has placed Sweden in category with Finland, Portugal, and Spain (Wendt and Bambra 2020; Reibling et. al 2019). This makes them similarly capable of managing infectious disease cases while also giving them similar financial capacity to install testing capacities, technologies, and preparedness investments (Rubin & Baekkeskov 2020). In light of these similarities, a comparison of the three countries control a variety of factors that can otherwise plausibly explain variation in COVID-19 response policy. It is thus useful for analyzing to what extend COVID-19 policy divergence between most-similar countries are the result of diverging policy preferences and ideas among national expert groups.

The structured case comparison of the three countries is limited to four important dimensions central to the politico-administrative organization of national pandemic preparedness systems: (1) the autonomy of health expertise in the state; (2) health care system centralization; (3) lowest administrative level of pandemic preparedness system; and (4) COVID-19 response strategy. The first dimension refers to the autonomy of health experts in preparing for and responding to health emergencies in the state, in other words the power and responsibilities of public health experts and state agencies to define threats, risk scenarios and steer policy as they see fit vis-a-vis elected politicians (Biesbroek et al. 2018). It is thus related to whether political leaders are able to intervene in the daily operations of public health agencies during pandemics as well as the principles that guide expert-politician interaction. The second dimension refers to the degrees of centralization or decentralization in national health care systems, that is, the policy power given to central or less central authorities within the system (Magnussen et al. 2007). The third dimension refers to the lowest administrative level at which public health interventions to prepare and respond to infectious disease emergencies are implemented. This dimension is important for understanding the actors present in the policy advisory system around the issue of pandemic preparedness. The final dimension refers to the COVID-19 response strategies employed in the three countries during the first wave of the pandemic. This is a relevant dimension to include as it enables us to distinguish different national response strategies from each other. We draw on Ferguson et al. (2020) to distinguish between three COVID-19 strategies: containment, suppression, and mitigation. Containment strategies focus on isolating and containing the virus to

stop it from entering into the country in the first place through border closures, travel restrictions and quarantine measures. Suppression and mitigation are two response strategies for handling the pandemic once the virus has already spread to significant parts of the population. Mitigation refers to a strategy whereby transmission is reduced but the effective reproduction number (R_t) remains above 1 to build up herd immunity in the majority of the population through natural infection while isolating individuals at risk. This strategy does not adopt strong non-pharmaceutical measures like lockdowns. While mitigation can have more encompassing meanings in the literature, this use of the concept is specifically tied to Ferguson et al. (2020) classification of COVID-19 strategies. Suppression, oppositely, refers to a strategy whereby transmission is reduced to keep R_t below 1 through non-pharmaceutical interventions like societal wide lockdowns until population-wide vaccination is possible.

The dimensions are analytically driven. The politico-administrative organization of pandemic preparedness systems is important for limiting the space in which authorities are able to make decisions (Greer et al. 2020). Meanwhile, in combination with the COVID-19 strategy, it also constitutes the basis on which expert perceptions are formed, and to which they must be related analytically. The comparison relies on official documents like pandemic preparedness plans and commission reports, national and international peer-reviewed articles and quantitative policy indicators.

Expert Survey

We investigated the perceptions of experts on COVID-19 response and pandemic preparedness through a cross-national expert survey of 232 experts with disciplinary backgrounds in medicine, public health, epidemiology, virology, and economics. Experts were sampled from a database of all national public experts constructed between January-September 2020 (see appendix A). This sampling strategy was chosen for two reasons. First, given the number of disciplines accounting for and relevant to pandemic preparedness (Mol & Hardon 2020), we sought to create a maximum variation of COVID-19 relevant expertise. For this reason, sampling strategies based on institutional affiliation or snowballing were disfavored due to the risk that they might reinforce disciplinary divides. News media are stable empirical sources for comparative analysis across countries and have shown to be an important site for expert statements, contestation, and discussion (Andersen *et al*. 2020). Second, public presence indicates expertise relevant to understanding and handling the pandemic, which pre-analysis confirmed. Public visibility is a key

definitional element of expertise (Eyal & Buchholz 2010), and to our knowledge, this study is the first to systematically map and display the different forms of expertise related to pandemic preparedness in the Nordics.

Experts were selected based on two criteria: a formal association with a national university, hospital, research institution or public agency, and work within aforementioned disciplines. These disciplinary backgrounds were selected as they matched the economic and health dimensions of preparedness, which the survey sought to address. To control for selection biases associated with public media presence, an endogenous measure in the form of "presence on institutional expert lists" was incorporated into the design. Many universities and hospitals have published lists of institutionally identified experts in light of the pandemic. We collected publicly available lists from institutions represented by a minimum of two experts in the initial dataset. This search yielded a control group of 208 experts, of which more than half were already in the dataset based on news media presence.

Based on this population sampling strategy, we identified 982 experts that were sent an online survey via email, open from November 17 to December 20. We collected 232 complete responses, corresponding to a response rate of 24%. We performed a nonresponse bias analysis (see appendix A) which did not reveal any major underrepresented expert subgroups, although women and individuals with positions in hospitals or management functions had lower response rates. We return to the study's main limitations in the discussion. The survey was pre-tested with experts in all countries and divided into five sections. The first section collected expert attributional data. The second collected data on the experts' advisory activities prior to and during the pandemic. The third section asked respondents to evaluate their national preparedness systems in relation to eight dimensions before COVID-19 and their government's reaction to the pandemic, while the fourth section asked how pandemic preparedness might be improved in the future. The final section presented the respondents with a selection of "pandemic puzzles" related to known points of expert disagreement and policy suggestions.

Quantitative analysis

We conducted statistical analysis of the select variables of the expert survey. The descriptive statistics of the survey population can be found in table 1. The analysis begins with a descriptive analysis of experts' perceptions of pandemic response using a multi-dimensional measure of

pandemic response along eight dimensions: saving lives of citizens, securing integrity of critical infrastructure, prevent economic recession, prevent socio-economic inequality, secure state finances, ensure citizens' mental health and wellbeing, protect vulnerable groups, and maintain democratic accountability. We asked experts "In the period from the detection of the first COVID-19 case in your country and until the beginning of October 2020, how would you assess the performance of your country's COVID-19 response activities? Respondents were able to answer on an ordinal scale from 'underreacted' (government reacted with less than appropriate resources), to 'neither or', and 'overreacted' (government reacted with more than appropriate resources). These answer categories were chosen to allow experts to answer using both ends of the reaction spectrum (underreaction/neither-or/overreaction). Respondents were also able to answer "don't know/not relevant". We report the results in figure 2 in the result section.

We then use experts' perceptions of their national government's response to the COVID-19 outbreak in relation to the dimension 'saving lives of citizens' as the dependent variable in an ordinal regression analysis, with responses coded in three categories: as an overreaction (Y_i= 3), neither an overreaction nor an underreaction (Y_i = 2) or an underreaction (Y_i = 1). Our main exogenous measure is that of experts' *dominant ideas,* analyzing to what degree experts support the idea of 'focused protection' inspired by the transnational expert discussion about the application of non-pharmaceutical interventions. Here, we relied on a question asking for agreement with the main principle of focused protection, stating that "the best approach to reaching herd immunity is to allow those who are at minimal risk of death to live their lives normally in order to build up immunity to the virus through natural infection, while better protecting those who are at highest risk". Responses were coded in three categories including (1) strongly disagree or disagree, (2) neither agree nor disagree, and (3) agree or strongly agree. A higher value indicated a greater level of agreement with the idea of focused protection whereas a lower value indicates an inclination toward community protection. We also asked experts for their support of the alternative strategy of "community protection" by asking for agreement with the idea that "controlling community spread of COVID-19 is the best way to protect our societies and economies until safe and effective vaccines and therapeutics arrive". Responses were coded in a similar way as to focused protection. The answers to this question correlated negatively with the focused protection question, giving us confidence that respondents saw them as alternative strategies. Focused protection and community protection maps onto the distinction between mitigation and suppression strategies. Focused protection is associated with the mitigation

strategy given that herd immunity is reached by keeping R_t above 1 by allowing natural infection in the population while isolating individuals at risk. In contrast, a suppression strategy is associated with the strategy of community protection as non-pharmaceutical interventions like lockdowns are employed to control community spread to keep R_t below 1 until population-wide vaccination is possible.

We employed an ordinal logistic regression model with maximum likelihood estimates using the following equation:

$$\ln\left(\frac{P(Y_i > j}{P(Y_i \leq j}\right) = \alpha_j + \beta' X \; ; j = 1{,}2$$

Where β and X are vectors of size *k*, which refer to the set of explicative variables used (see Mascia & Cicchetti 2011). The model estimates two cut-off points for Y_i and a single effect parameter vector ($\beta_1 1, \ldots \beta_k$) for each independent variable. The fraction on the left-side of the equation expresses the logit (i.e., probability that Y_i is >j versus ≤ j). There are three possibilities in Eq. (3)'s sampling space (overreaction, neither or, underreaction).

We included four categories of control variables in the ordinal regression analysis. First, we control for politico-administrative factors relating to experts' 'location' in the policy advisory system around national pandemic preparedness. We use three indicators for experts 'closeness' to government and 'inside-outside' status in public administration (Craft and Howlett 2012). These are important because some policy subsystems are characterized by advisors closer to the government and the public sector having particular policy preferences, reflecting an insulated policy network (Craft and Wilder 2017). The three indicators include whether experts have positions within the public health authorities or not, their seniority (do they have management/senior adviser responsibilities), and whether they have advised national governmental bodies on COVID-19 related matters during the first wave of the pandemic. We controlled for coding effects by recoding the three indicators with more fine-grained nominal categories (dummy-coded). However, this did not change the parameter estimates significantly from the one binary recode employed in the analysis.

Second, we control for epistemic factors related to associated epistemic norms or epistemic differences among experts which may be a result of similar education and training by including the disciplinary affiliation of experts in the analysis. Experts were categorized into four groups depending on their main discipline of expertise or clinical practice: (1) medicine; (2) public health, including epidemiology and biostatistics; (3) economics; and (4) what we term laboratory specializations, including molecular medicine and virology. Medicine includes doctors and other health experts engaged in clinical practice with a background in medicine whereas economics solely includes academic economists. Inspired by Jasanoff et al. (2021), we distinguish between disciplines specializing in targeting social practices as in the case of epidemiology, public health, and biostatistics, and in targeting the virus on a molecular level as in the case of molecular medicine, molecular biology, and virology. It is relevant to control for epistemic factors as previous research has shown the importance of disciplinary divides for issue perception and treatment (Seabrooke & Tsingou 2016).

Third, we control for demographic and geographic factors such as age, gender as well as metropolitan proximity given that metropolitan areas have experienced the most COVID-19 cases. Finally, we control for sampling bias, using the previously presented measure of presence on institutional COVID-19 expert lists.

Experts' perception of their government's ability to save lives during the pandemic was analyzed through two different models. Model 1 tests the association of the overreaction/underreaction with country level and focused protection factors including the control variables. Model 2 includes interactions between country variables and focused protection. Analyses were performed using Stata version 16.

Table 1: Descriptive statistics of survey population

Saving lives (main dependent variable)	
Underreaction	64 (27%)
Neither underreaction nor overreaction	129 (56%)
Overreaction	39 (17%)
Dominant Ideas (main independent variable)	
Supporting focused protection, N Experts (%)	
No (baseline)	175 (75%)
Yes	57 (25%)
National Factors	
Country, N Experts (%)	
Norway (baseline)	53 (23%)
Denmark	88 (38%)
Sweden	91 (39%)
Locational Factors	
National Public health institution, N Experts (%)	
No (baseline)	183 (79%)
Yes	49 (21%)
Seniority, N Experts (%)	
Senior (Full professorship or Chief Physician) (baseline)	132 (57%)
Management	22 (9%)
Other (less than senior or management, eg. associate/assistant professor, MD)	78 (34%)
Advised National Government, N Experts (%)	
No (baseline)	113 (49%)
Yes	119 (51%)
Disciplinary factors, N Experts (%)	
Medicine (baseline)	109 (47%)
Public Health	57 (25%)
Economics	36 (15%)
Lab	30 (13%)
Demographic and geographic factors	
Gender, N Experts (%)	
Male (baseline)	169 (73%)
Female	63 (27%)
Age, Year, mean ± SD (range)	
Age	57 ± 11 (46-68)
Metropolitan regions, N Experts (%)	

No (baseline)	69 (30%)
Yes	163 (70%)
Sampling factors	
On expert list, N Experts (%)	
No (baseline)	173 (75%)
Yes	59 (25%)

Results

Denmark, Norway, and Sweden all produced pandemic preparedness plans in the early 2000s with reference to the WHOs growing emphasis on preparedness (Europeiska kommissionen 2005). Their plans have since undergone a number of transformations, in particular, as a result of the H1N1 pandemic, which early on exposed weaknesses in health crisis management in the Nordics (Baekkeskov 2016). The COVID-19 pandemic has exposed new divergences between the Nordic countries and the importance of the politico-administrative organization of pandemic preparedness for pandemic response.

All three preparedness systems are constructed on the principles of sector responsibility (administrative units are responsible for preparedness within their purview), equality (operations should be organized similarly during emergencies as under normal conditions) and proximity (emergencies are to be handled at the lowest possible administrative level). Yet, they also differ in the responsibilities and tasks given to different layers of government and whether central authorities and political leaders can intervene in the affairs of lower levels of government and overrule the advice of public health agencies.

Denmark

Denmark's health care and preparedness system are organized in three governmental levels (Sundhedsstyrelsen 2013). Denmark's 98 municipalities are responsible for social services, including care for the elderly and disabled while hospital services are managed by the five regions. The healthcare system is decentralized in relation to service provision and public health, but the overall planning and regulation of health care is centralized to the national level (OECD 2019a). Responsibility for pandemic preparedness lies within the Ministry of Health and is structured through ministerial governance. Ministerial governance refers to the arrangement that ministers in Denmark as well as Norway, across all policy areas, are able to intervene in and steer the daily

operations of state agencies and overrule the advice of agency experts if they fall under their area of responsibility (Grønnegård et al. 2016). In Denmark, the Danish Health Authority (DHA) (*Sundhedsstyrelsen*) is the main guiding and coordinating organ in health emergencies (Sundhedsstyrelsen 2013), assisted by *Statens Serum Institut*, the expert organization responsible for epidemiological surveillance, analysis and modelling, which it reports to the DHA. Given the tradition of ministerial governance, the DHA, however, has little autonomy in steering policy if political leaders decide to intervene in its affairs. Pandemic preparedness is therefore a centralized matter in Denmark, with the central administration able to impose its policies on lower levels of government, which are not significantly involved in the policy area.

In January 2020, the DHA assessed the probability of COVID-19 entering Denmark to be very small, recommending neither screenings of individuals travelling from nor travel restrictions to known high-risk areas. As this likelihood grew throughout February, the DHA embarked on a containment strategy, adopting travel restrictions and voluntary quarantine measures for citizens arriving from risk zones. However, as hopes for containing the virus diminished due to rising infection rates, the government quickly exchanged its containment strategy with a suppression strategy to drastically restrict social practices. On the 11th of March, the same day the WHO officially categorized COVID-19 as a pandemic, the Danish Prime Minister announced that Denmark would undergo a nation-wide lockdown in order to "flatten the curve" and protect hospital capacity. The suppression strategy was supported by the invention of a precautionary principle, legitimizing the closure of kindergartens, educational institutions as well as restaurants, malls and other social gathering spots. Public gatherings were restricted to 10 persons and non-urgent medical treatment was postponed to expand hospital capacity. Interestingly, the political choice of a suppression strategy contrasted with the advice of the DHA, which favored a mitigation strategy. Nonetheless, the strategy was highly effective in reducing infection rates and hospitalizations, allowing the country to gradually open throughout the summer months. However, by late August, infection rates were on the rise again, indicating the beginning of a second wave, leading to new restrictions on social practices. By the 16th of December, the country went into its second lockdown phase.

Compared to Sweden, Denmark replaced its initial containment strategy with a suppression strategy as initial containment failed. While this strategy was highly intrusive in the lives of Danish citizens, the DHA initiated neither curfews nor severe fines for non-compliance as visible

in other European countries. Overall, Denmark's COVID-19 response to the first wave was well received in the public and among the majority of experts in the media. Critics focused on whether Denmark in fact was overreacting given the lethality of the virus and should, instead, have used a mitigation strategy. Besides what became known as the 'Mink Scandal', in which Denmark's entire population of mink was exterminated due to concerns for a new dangerous mutation of COVID-19 spreading, conflicts mainly revolved around whether policy was supported by scientific evidence and if politicians should overrule the advice of experts despite the tradition of ministerial governance.

Norway

Compared to Denmark, Norway's health care and preparedness system is more decentralized. Although the healthcare system is also organized in three governmental levels, the tasks are distributed differently with the regions in charge of specialist care and the municipalities responsible for primary health care and social services (OECD 2019b; Ursin *et al*. 2020). The Ministry of Health and Services has the national responsibility for pandemic preparedness in Norway, coordinating interventions alongside expert subordinate agencies like the Norwegian Directorate of Health (*Helsedirektoratet*) and the Norwegian Institute of Public Health (*Folkehelseinstituttet*). While these agencies are formally independent, ministerial governance is the structuring principle like in Denmark. As such, Norway's public health experts and state agencies have less autonomy compared to, for instance, Sweden. Hospitals are run by four regional health enterprises with large degrees of autonomy, but ultimately owned and overseen by the Ministry of Health and Care Services. In contrast to Denmark, municipalities manage primary and long-term care as well as social services but are also responsible for pandemic preparedness. Together, this makes Norway's health care system semi-decentralized. Since 2020, Norway has been organized in 350 municipalities, across 11 regions, giving them an increasingly important role in coordinating infectious disease management (OECD 2019b:9). During the COVID-19 pandemic, this allowed municipalities to introduce their own local restrictions on movement and face masks, sometimes in opposition to the recommendations of the central authorities. Municipal doctors (*Kommuneoverlæge*) are responsible for the local preparedness systems in terms of monitoring, documenting, and reporting rates and cases (Sosial- og Helsedepartementet 2019). Given the municipalities role in pandemic preparedness, Norway's preparedness system is thus more decentralized and locally attuned compared to Denmark. This local aspect also increases the amount of actors in the policy advisory system.

Despite differences in preparedness, Norway's response was similar to Denmark. The Norwegian health authorities (NHA) also relied on a containment strategy throughout February 2020, hesitant to employ highly intrusive measures (Christensen and Lægreid 2020). As the number of confirmed cases continued to grow, the NHA changed its initial containment strategy to a suppression strategy. On the 12th of March, the day after the lockdown of Denmark, Norway's Prime Minister announced a similar lockdown of society, including mandatory closures of kindergartens, schools, colleges, and universities as well as significant parts of the business sector. Like Denmark, these measures were implemented to uphold a functional health care system and to "flatten the curve". They were also the result of political pressure and intervention as the NHA advocated for the use of a mitigation strategy (Christensen & Lægreid 2020). Nonetheless, Norway's suppression strategy was effective in reducing infection rates and hospitalizations. Throughout April, May, and June, the country gradually re-opened, allowing 200 persons to gather in doors during the summer. During autumn, Norway re-introduced restrictions to limit the impact of a second wave by restricting alcohol servings and urging Norwegians not to invite guests home. In contrast to Denmark, the NHA has largely refrained from face mask requirements.

Norway's COVID-19 response was thus similar to Denmark. The government changed its initial containment strategy to a suppression strategy as the numbers of COVID-19 cases rose, but never introduced curfews. However, compared to Denmark and Sweden, Norway has enforced the strongest quarantine rules, including fines for non-compliance. As for the reception, the handling of the outbreak has been described by local analysts as "consensual" and "based on pragmatic collaboration" (Christensen and Lægreid 2020:777), with expert bodies accepting political leadership's decisions to diverge from their advice. One of the few tensions has been between the DHA and municipalities in the Northern part of Norway, which established local restrictions on movement due to low health care capacity. This contrasted with the recommendations of the NHA, exposing conflicts in the semi-decentralized organizations of Norway's pandemic preparedness system. Yet, in comparison to Denmark and Sweden, Norway's COVID-19 trajectory has been the least conflictual.

Sweden

Like Denmark and Norway, Sweden's health care and pandemic preparedness system is governed on three levels (Kavaliunas et al. 2020). The central government is responsible for defining policy

and legislation at the national level while the 21 regions are in charge of hospitals and healthcare. The country's 290 municipalities are in charge of social services, including care for the elderly and disabled. In relation to pandemic preparedness, the two agencies, the Public Health Agency of Sweden (*Folkhälsomyndigheten*) (PHA) and the National Board of Health and Welfare (*Socialstyrelsen*) are the most important actors for national COVID-19 policy. Importantly, ministerial governance is prohibited in Sweden, representing a sharp contrast to Denmark and Norway. This means that ministers and politicians are prevented from intervening in the daily operations of state agencies, granting public health experts in the state a high degree of professional autonomy. Further, agencies have a limited mandate to enforce policy on regional and municipal levels unless they are supported by parliament. This makes the health system more decentralized compared to both Denmark and Norway. Since the passing of the Swedish Infectious Disease Act of 2004, regions in Sweden have established infectious disease units (*Smittskyddsläkare*), which, together with regional administrative boards (*Länstyrelser*), are responsible for pandemic preparedness within the region. In practice, this makes it difficult for the central authorities to intervene in the work of the infectious disease units. Finally, compared to Norway and Denmark, Sweden faces constitutional limits in the implementation of non-pharmaceutical interventions. This is partly related to the country's constitution, which since 1974 has stipulated citizens' right to free movement within Sweden and to leave its borders. As such, while the Swedish Infectious Disease Act of 2004 allows for imposing restrictions on individuals, it does not allow for general lockdown measures (Ludvigsson 2020).

Compared to Denmark and Norway', Sweden's response to the first wave of COVID-19 has constituted an outlier because it did not enforce a lockdown. However, Sweden's strategy has been far from as *laissez faire* as made out to be by its critics. Like its neighboring countries, Sweden initially relied on a containment strategy, encouraging people returning from high-risk regions to self-isolate (Pierre 2020). But as the number of confirmed cases increased, Sweden did not exchange its containment strategy with a suppression strategy. Instead, it relied on a mitigation strategy (Baral *et al,* 2021), keeping its restaurants and bars open, limiting public gatherings to 50 persons while keepings its schools open for children under the age of 16 as the only country in Europe. This alternative strategy relied on two principles. First, a cornerstone of the approach was to protect vulnerable groups by banning visitors to nursing homes and urging individuals above the age of 70 to self-isolate. Second, the PHA put the Swedish citizen at the center of its strategy, appealing to its rationality and responsibility. Whereas Norway and Denmark 'forced' citizens to

practice social distance through lockdown measures, Sweden relied on voluntary measures to flatten the curve such as hand hygiene and physical distance recommendations (Kavaliunas et al. 2020). In doing so, the Swedish strategy took on a more expansive view of public health, framing its approach as more tenable with regard to citizens' overall well-being, health, and fatigue rather than solely focusing on COVID-19 (Jasanoff et al. 2021:94ff). In mid-December 2020, Sweden closed down non-essential public workplaces such as gyms and libraries and recommended the use of face masks on public transportation.

Sweden's use of a mitigation rather than a suppression has stirred a great deal of domestic controversy. Compared to Denmark, and particularly Norway, the reception of Sweden's strategy has been mixed as already mentioned, characterized by both public and expert support and criticism. One overarching tension has revolved around the high COVID-19 death toll in nursing homes and its connections to systemic shortcomings in elderly care and governmental inaction. A second tension has been the choice of a mitigation strategy. Groups of experts have, for instance, publicly criticized the PHA's measures for being too soft, urging politicians to implement lockdown policies and adopt more non-pharmaceutical interventions similar to Denmark and Norway.

Summary

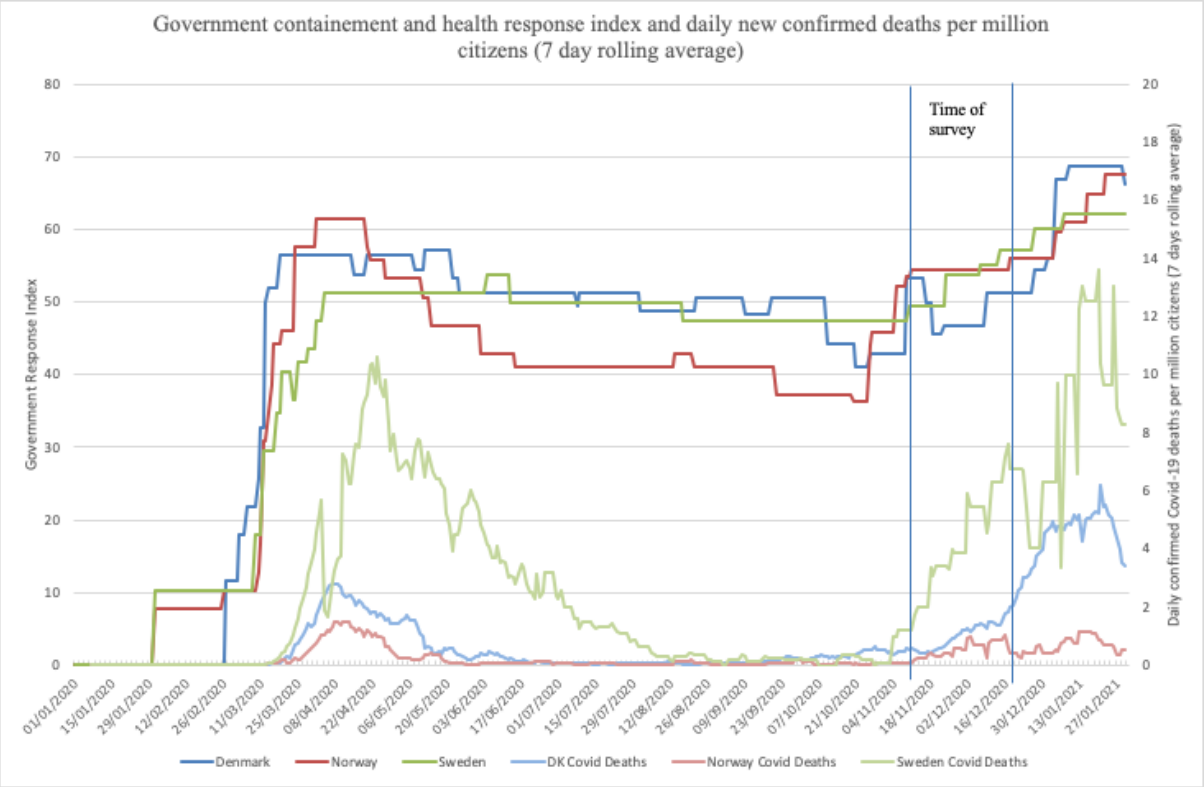
Denmark, Norway, and Sweden responded in similar but also different ways to the first wave of the COVID-19 pandemic. Whereas Denmark and Norway favored non-pharmaceutical strategies trending towards suppression, Sweden relied on a mitigation strategy (Ferguson et al. 2020). These strategies played out in different politico-administrative pandemic preparedness systems characterized by varying degree of autonomy given to health experts in the state, different centralization rates, legislative barriers, and political norms. These differences are shown in Table 2.

Table 2: Comparative summary of politico-administrative organization of pandemic preparedness systems

	Denmark	**Norway**	**Sweden**
Autonomy of Health Expertise in the State	Ministerial governance Low autonomy	Ministerial governance Low autonomy	No ministerial governance High autonomy
Health Care System Centralization	Centralized	Semi-decentralized	Decentralized
Lowest administrative level of pandemic preparedness	National	Municipal	Regional
COVID-19 Strategy	From containment to suppression	From containment to suppression	From containment to mitigation

Figure 1 presents a timeline of the pandemic, showing both the number of daily COVID-19 related deaths in each country as well as the strictness of their governmental response measured through the governmental response index. The index is based on eight indicators measuring the strictness and geographic scope of COVID-19 policies (e.g., school and workplace closure), and four health measure indicators (e.g., information campaigns, testing policy) normalized to a scale between 0-100 (Hale et al. 2020). Figure 1 shows the difference between the suppression strategy pursued by Denmark and Norway in early March and Sweden's mitigation strategy. During the months of May to November, the Norwegian government significantly reduced the intensity of its measures, primarily in response to low incidence rates. All countries began re-introducing stricter measures from mid-November, in response to the second wave of virus transmission. This period, however, falls outside the scope of this paper, a limitation which we will discuss later. Finally, the figure shows the timing of our survey.

Figure 1: Stringency and COVID-19 Related Deaths in Denmark, Norway, and Sweden



Quantitative Results

Having compared Denmark, Norway, and Sweden's pandemic preparedness systems and first wave COVID-19 responses, we turn to analyzing experts' perceptions of their national policy responses to the COVID-19 pandemic. We start by comparing expert perception of pandemic response across countries, using our multi-dimensional measure of pandemic response. We then proceed by estimating an ordinal logistic regression model of the association of pandemic response perception on the dependent variable of "saving lives", and expert-held dominant ideas such as focused protection, the main exogenous measure, while adjusting for potential confounding locational, disciplinary, demographic, geographic, and sampling factors.

Evaluating Pandemic Response

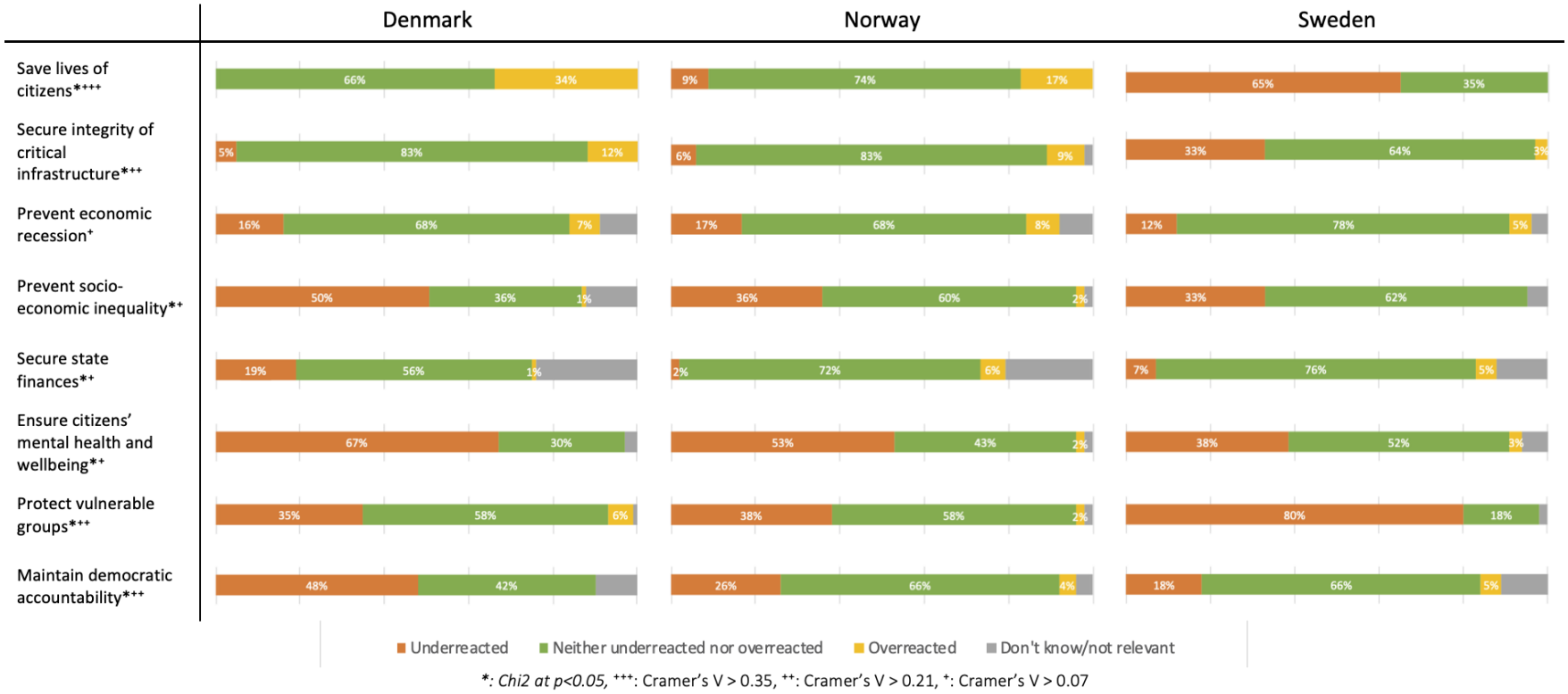
Figure 2 presents the results of the cross-national and multi-dimensional pandemic preparedness response measure. The measure is constructed through experts' perception of their country's national preparedness response (from initial detection until October 2020) in relation to eight dimensions. Comparing experts' perceptions across the countries, similar distributions for the two dimensions of saving lives and securing critical infrastructure can be identified. However, Danish

experts are more likely to perceive their country's response as an overreaction compared to Norwegian and Swedish experts, while Swedish experts are more likely to perceive their country's response as an underreaction on these parameters. We see a similar distribution in terms of "protecting vulnerable groups", although very few experts perceive an overreaction on this parameter.

Danish experts are slightly more likely to perceive their government's reaction as an underreaction on the parameter of socio-economic inequality compared to Norway and Sweden. However, all countries are primarily placed within the two categories of underreaction or appropriate reaction. Most experts perceive their government's reaction in terms of securing state finances appropriate, but 25% of Danish experts perceive an underreaction on this parameter (that is; overspent). This matches well with the overreaction distribution reported on "saving lives".

As Figure 2 reveals, most experts are concerned about a governmental underreaction in terms of ensuring mental health and wellbeing of their citizens. However, Danish experts are more pronounced with 69% calling it an underreaction, vs 54% and 40% for Norway and Sweden respectively. Finally, and significantly, Norway and Sweden look very similar on the "maintaining democratic accountability" dimension, with 70% reporting an appropriate government response. However, a good half of Danish experts believe the Danish government has done too little to ensure this parameter during the pandemic.

Figure 2: Expert Multidimensional National Response Evaluation



**: Chi2 at p<0.05,* $^{+++}$: Cramer's V > 0.35, $^{++}$: Cramer's V > 0.21, $^{+}$: Cramer's V > 0.07

Since the figure shows national variation along a series of dimensions, we include a measure to compare the strength of correlation between country and dimension. Cramer's *V* is used for nominal variables that have more than two levels, and ranges from 0 to 1 (Gravetter & Wallnau, 2007). The measure highlights those dimensions that show the most significant national differences. It shows the 'saving lives' dimension to be the most nationally divisive (with a Cramers *V* value: 0.4867, next highest is at 0.3082 for protecting vulnerable groups). Of particular interest here, is the group of experts, predominantly in Denmark, but also in Norway, who consider their national pandemic response an overreaction in relation to the dimension of saving lives. Because there appear to be some confounding factors here that need explanation, we estimate an ordinal logistic regression model.

Accounting for Variation in Expert Perceptions

How do we explain the variation in experts' perception of COVID-19 responses while controlling for the national responses themselves? Table 3 presents the results of an ordinal logistic regression model estimating the association between the parameter of saving lives and support for the dominant idea of focused protection, adjusting for potential confounding locational, disciplinary, demographic, geographic, and sampling, factors. Since the dependent variable has been logtransformed, effects of the explanatory variables are interpreted as changes in the log odds of perceiving pandemic response as an overreaction (versus neither underreaction nor overreaction or overreaction). The reference group for the regressions are Norwegian male experts outside of public administration who have not advised national government on COVID-19 related matters, either critical or indifferent to focused protection as a strategy, specializing in medicine, living outside of metropolises, and with seniority at the level of professor or chief physician.

In both models, expert perception is significantly associated with support for the principle of focused protection and country of residence when controlling for locational, disciplinary, demographic, geographic and sampling factors. At standard thresholds of statistical significance, the coefficients in the models show a positive association between the principle of focused protection (e.g. disagreement with community protection) and the probability of perceiving governmental response in relation to saving lives of citizens as an overreaction. As such, experts supporting the idea of focused protection have a significantly higher probability of perceiving their government's COVID-19 response as an overreaction compared to experts indifferent to or disagreeing with the idea. This supports previous research emphasizing the importance of

dominant ideas for expert perception of pandemic response (Baekkeskov 2016; Baekkeskov and Öberg 2017). However, opposed to previous studies, the results of the models do not indicate that such ideational support follows along locational nor disciplinary divides. Importantly, we find no significant covariance between support for focused protection and the locational, disciplinary, demographic, and geographic control variables. As such, the results provide little evidence of closed or contested policy networks structured along either of lines, but rather seem to show the existence of a significant minority (25%) of experts across countries, disciplines and locations in the policy advisory system strongly supporting focused protection and thereby tending to diverge from the majority support (or criticism in the case of Sweden) for national response.

The country coefficients reflect the distributions seen in Figure 2. Compared to Norwegian experts, the reference category, Swedish experts have a significantly higher probability of perceiving their government's efforts to save lives as an underreaction, bellying the aforementioned public expert criticism of the initial Swedish mitigation strategy. In comparison, Danish experts are more likely to perceive their government's efforts as an overreaction compared to Norwegian experts. As reflected in Figure 2, we find that the majority of experts in countries pursuing a suppression strategy like Denmark and Norway perceive their government's policy response as neither an overreaction nor an underreaction while the majority of experts in a country like Sweden pursuing a suppression strategy perceive their government's response as an underreaction. In light of the structured case comparison and the fact that only 25% of experts support focused protection, this finding highlights consistent cross-national expert policy preference for suppression strategies. While this is the general trend across the three countries, it should be noted that in both Denmark (34%) and Sweden (35%) a significant minority of experts can be identified who regard their government's response as an overreaction (in the case of Denmark) or neither or (as in the case of Sweden). The existence of this expert minority in Denmark is most likely also the driver behind the variation between the perceptions of experts in Denmark and Norway in Table 3.

In Model 2, we include the interactions between country variables and the focused protection variable to test whether nationality intersected with dominant ideas. Neither of these were statistically different from zero. In Figure 3, we illustrate the effect of agreement and disagreement with the principle of focused protection on experts' assessment of government's ability to save lives during the pandemic, across the three countries. Figure 3 shows how experts from countries,

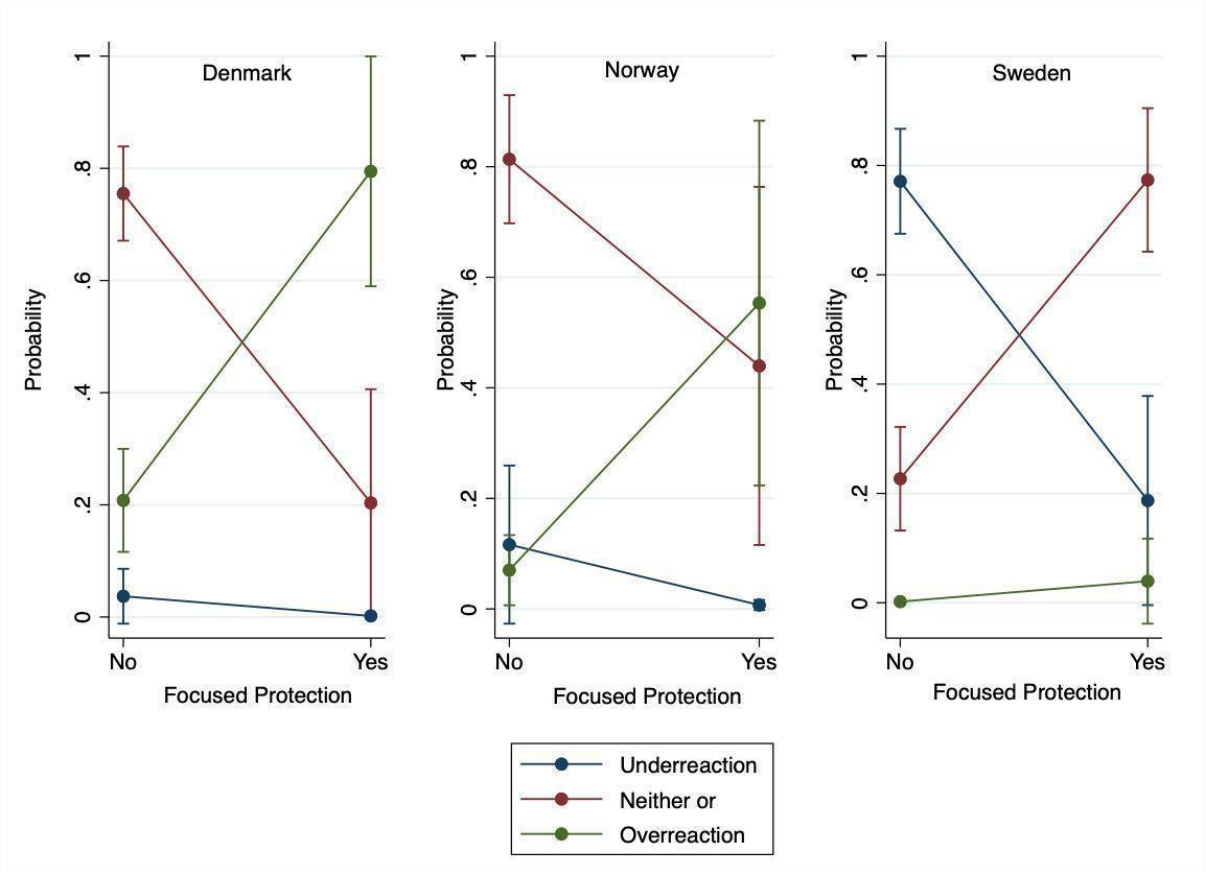
which employed a suppression strategy during the first wave of the pandemic like Denmark and Norway have a significantly higher probability of perceiving their government's response as an overreaction if they support the idea of focused protection. Experts from countries pursuing a mitigation strategy like Sweden are more likely to see it as neither an underreaction nor an overreaction if they support focused protection.

Table 3: Ordinal regression models

	Model 1, [95% CI]	Model 2, [95% CI]
Main exogeneous variable		
Focused Protection	1.646*** [.9594258,2.332713]	3.035*** [.9541268,5.115762]
Country		
Denmark	.99** [.0745461,1.904537]	1.3** [.2262297,2.373463]
Sweden	-3.837*** [-4.982998,-2.690282]	-3.653*** [-4.833754,-2.472516]
Locational factors		
National public health institution	.328 [-.5178161,1.173866]	.379 [-.4718739,1.229217]
Seniority (management)	-.442 [-1.514791,.6311714]	-.385 [-1.461717,.6923323]
Seniority (other)	-.701 [-1.967297,.5651666]	-.711 [-1.971304,.5500428]
Advised national government	.123 [-.4913383,.7370525]	.125 [-.488994,.7399688]
Disciplinary factors		
Discipline (ECON)	-.147 [-1.08057,.7863736]	-.127 [-1.058946,.805931]
Discipline (LAB)	.59 [-.3414026,1.520423]	.586 [-.3430957,1.515832]
Discipline (PHEBS)	-.318 [-1.102371,.4665183]	-.346 [-1.136617,.4455106]
Demographic factors		.
Female	.425 [-.3013709,1.151985]	457 [-.272152,1.186631]
Age	.001 [-.0279029,.0298005]	0 [-.0286958,.0292863]
Geography factors		
Metropolis	-.36 [-1.035637,.3155528]	-.338 [-1.015873,.3406098]
Sampling factors		
Expert list	-.348 [-1.102565,.4065451]	-.307 [-1.062406,.448224]
Interactions		
Denmark*focused protection		-1.554 [-3.810335,.7018508]
Sweden*focused protection		-1.532 [-3.843457,.7792814]
/cut1	-2.923*** [-4.983256,-.8628515]	-2.774*** [-4.849076,-.6995892]
/cut2	2.044** [.0773675,4.010873]	2.315** [.2755515,4.353492]
Observations	232	232

**** p<.01, ** p<.05, * p<.1*

Figure 3: Marginal Effects of belief in focused protection as strategy on expert perception of appropriateness of government responses to save lives during the pandemic



Discussion

This study has, in a structured comparative way, investigated how otherwise similar countries belonging to the same public health regime like Denmark, Norway, and Sweden responded differently to the COVID-19 pandemic and to what degree their policy divergence reflect significant differences in the attitudes and policy preferences within and between national expert groups.

Our comparison suggests that the main differences between Denmark, Norway, and Sweden are not related to significant differences in the attitudes and policy preferences within and between their national expert groups. Experts present in countries pursuing a suppression strategy like Denmark and Norway systematically perceived their country's COVID-19 response more favorably in terms of saving lives compared to experts from a country pursuing a mitigation

strategy like Sweden. While showing the existence of a significant minority supporting ideas tied to a mitigation strategy, our results support findings made in other studies that point to the development of an emerging transnational expert consensus on the inadequacy of herd immunity by natural infection as a strategy (Sridhard & Gurdasani 2021; Chen *et al*. 2021). To take into account the politico-administrative position of actors, we control for location in the policy advisory system in the three counties through three parameters – part of national public health institution, seniority, and whether the expert has advised governmental and state institutions on COVD-19 related matters – but find that none of these significantly explain variation in how experts perceive COVID-19 policy response nor support focused protection. In relation to the literature on policy advisory system, our results show how experts' perceptions and dominant ideas are not structured along locational lines related to either inside-outside or close-far positions in the system (Craft and Howlett 2012). As such, we find no significant evidence to suggests that the policy divergence observed between Denmark, Norway, and Sweden reflect significant differences in the policy preferences of different national expert groups. Based on the first part of the results section, this leads us to suggest that other factors besides expert advice dissensus better explain COVID-19 policy divergence between countries belonging to the same public health regime such as the politico-administrative organization of national pandemic preparedness policy subsystems. One important difference identified by the structured comparison of Denmark, Norway, and Sweden's politico-administrative organization of pandemic preparedness systems is the varying degree of autonomy of public health experts and agencies in the three countries in terms of defining and implementing policy measures to respond to the pandemic and the possibility of political leaders to overrule expert advice. This showcases the importance of politico-administrative factors for pandemic response and supports finding made in other cross-national studies of policy responses during COVID-19 such as Jasanoff et al.'s (2021) comparison of 16 countries, which emphasized how policy response is conditioned by pre-existing structures in health, economic, and political systems.

Although our results indicate that experts' perceptions of COVID-19 response and their support for policy preferences of either focused- or community protection are not structured along neither locational nor disciplinary divides, the results should be interpreted with caution as our measures of expert location in the policy advisory systems focus mainly on the structural aspects of location, thus overlooking potential other locational factors relevant for experts' perceptions of response.

One group of relational factors that the study is not able to control for are social network factors related to experts' location in specific policy and expert networks in the policy advisory system (Weible 2007). Differences in experts' perceptions of COVID-19 response and support for dominant ideas may be correlated with embeddedness in specific networks that cut across the locational, disciplinary, geographic, and demographic lines analyzed in the study. We suggest that the importance of social networks could be one fruitful avenue for future research to explore in order to further our understanding of the ideas and ties experts draw upon to understand health emergencies.

Further, our analysis identifies a statistically significant relationship between experts' perception of COVID-19 policy response and dominant ideas such as the efficacy of focused protection strategies. While support for suppressive non-pharmaceutical interventions are widespread in the sample population, we identify a smaller group of experts whose support for focused protection reverses their perception of pandemic responses. Experts from countries pursuing a suppression strategy were more likely to perceive their national response as an overreaction in relation to the dimension of saving lives if they supported the idea of focused protection whereas experts from countries pursuing a mitigation strategy were more likely to perceive their response as adequate if they supported focused protection. The opposite pattern is visible for experts supporting the idea of community protection. As such, the results of the analysis highlight how support for dominant ideas like focused protection is significantly associated with how actors perceive and assess pandemic response. This finding echoes the general importance of ideas and beliefs for experts' perception of pandemic response, which has also been highlighted by other studies (Baekkeskov 2016; Baekkeskov & Rubin 2014). This study contributes to this literature by not only emphasizing the importance of ideas, beliefs, and preferences for how experts think about pandemic policy but also by adding how ideational support is correlated with other factors such as disciplinary background and location in policy advisory systems. As already mentioned, we find neither of these factors to be statistically significant. Interestingly, this contrasts with established theories of policy advice, which have identified the presence of shared norms, beliefs, and preferences in locational and disciplinary communities (Holloway *et al*. 2021; Löblová 2018). This opens up space for hypotheses about what other factors are associated with ideational support like the aforementioned network factors.

While the study does not provide evidence of either locational nor disciplinary factors for experts' perception of COVID-19 response nor support of either focused- or community protection, it does raise a puzzling question about the transnational diffusion and national embeddedness of dominant ideas such as focused protection, given the fact that its proponents are mainly located in Denmark and Sweden. This geographical concentration may be a result of sampling bias but it also opens up for thinking about how transnational ideas and advice about pandemic response travel and the transnational institutions that shape how experts perceive and think about pandemic response. It is beyond the scope of the present paper to provide a genealogy of both focused and community protection and their historical-institutional trajectories, but two areas for future research stand out in light of the results of the analysis. The first is related to the role and credibility of transnational expert authorities like the WHO in disseminating dominant ideas about pandemic preparedness and response. Despite recurring periods of crisis like the West Africa Ebola Outbreak in 2014-2016, the WHO has been central in shaping the transnational agenda on pandemic preparedness through the dissemination of new concepts, procedures, and vocabularies (Lakoff 2017). Following the publication of the Great Barrington Declaration, which strongly advocated for focused protection, the WHO's director-general Tedros Adhanom publicly warned against the idea of herd immunity through natural infection, framing it as scientifically and ethically problematic due to the mortality rate of the disease, the possibility of multiple infections and the long-term health problems associated with infection (The Guardian 2020). Despite such clear indication from the WHO, a quarter of our sample supported the idea of focused protection one month after Adhanom's statement. Combined with the high degree of policy variation observed during the COVID-19 pandemic, which occurred despite the WHO's historical efforts to harmonize national pandemic preparedness systems, future research should focus on how experts across borders perceive the WHO and its epistemic legitimacy to better understand the sources and transmission of policy advice. The second is related to what alternative and potentially competing transnational institutions to the WHO that are able to shape experts' support for dominant ideas like focused- or community protection. While it is not possible to compare the signature databases of the Great Barrington Declaration and the John Snow Memorandum with the results of our cross-Nordic expert survey, we identify similar contrasting policy preferences in the sample as in the two signature collections. While the majority of experts support non-pharmaceutical interventions, the existence of a significant minority of 25% experts in the survey still raises the question of how these experts came to support this idea and through what

transmission channels. Here, future research could focus on exploring how these different policy preferences are related to epistemic disagreements and competing institutions within the field of epidemiology and their relationship to different political and moral values and beliefs.

Comparing how experts in similar public health regimes perceive pandemic response in situations of pandemic policy divergence can provide only partial accounts of how and why countries respond differently to pandemics because different cultural, historical, and economic policies can impact pandemic response in various ways. Future academic inquiry can extend the present study to other clusters of countries with similar public health regimes while keeping in mind that public health regimes are more fragmented and multi-level when it comes to pandemic preparedness than usually considered (Kickbusch & Reddy 2015). For example, the research design developed in this study can be extended to public health regimes outside of Europe such as East Asian welfare states (Karim et al. 2010) to compare expert perceptions of different public health regimes and interventions; this can provide inspiration for similar approaches tracing the impact of different dominant ideas on diverging pandemic responses and their support among national experts.

Limitations

Our results should be interpreted in light of three important limitations. First, the survey was conducted in situ between November and December 2020. Although experts were asked about pandemic preparedness and response until October, it is nonetheless important to note that the expert's perceptions may be in part a function of the timing of the study. While this is the premise of the study, that it allowed us to collect expert perceptions *in action*, thus limiting effects of retrospection, it still restricts our analysis to the first wave of COVID-19 and the information available to experts at that moment in time. This also means that the study lends itself well to future longitudinal comparisons. Second, as with most survey research of this kind, the sampling and responses are subject to potential self-selection biases. Besides controlling for sampling bias by including individuals present on pandemic expert lists, which revealed no major differences in perceptions, we have no meaningful way for controlling for such a bias. In terms of self-selection bias in survey responses, one could suspect that the survey appealed to more "critical" voices. The aim was to establish an interdisciplinary and inter-institutional sample of experts, and responses are reasonably representative in terms of gender, discipline, institutional affiliation, and seniority compared with the population (See Appendix A). Third, it is worth stressing that the survey is

primarily a measure of experts' perceptions of pandemic preparedness performance, and not an evaluation of the performance itself. Thus, we would be hesitant, and consider it premature, to conclude on the relative performance of the Nordic countries. As our survey reveals, such conclusions are difficult, not least since indicators relate to different moral choices that might be more or less valued in each polity, and the pandemic is far from over.

Conclusion

This study has examined how countries with the same public health regime diverged in policy response to the COVID-19 pandemic and to what degree this divergence reflects important differences in the policy preferences within and between national expert groups. Drawing on pandemic preparedness plans, national health care systems, COVID-19 policies, and a cross-Nordic expert survey, three main conclusions can be drawn from the study. First, Denmark, Norway, and Sweden responded differently to the COVID-19 pandemic. In Denmark and Norway, the governments enforced suppression strategies highly dependent on non-pharmaceutical interventions like societal-wide lockdowns during the first wave of the pandemic. In Sweden, a mitigation strategy was used that focused on voluntary measures, highlighting the importance of individual responsibility and seeking herd immunity in the population while only protecting individuals at high risk. These divergences crystallized during the first wave of the pandemic despite the three countries similarity in health care and welfare state models. Second, we find little evidence to indicate that this COVID-19 policy variation between Denmark, Norway, and Sweden reflect significant differences in the policy preferences of national expert groups. When controlling for locational positions in politico-administrative systems, disciplinary affiliations, as well as demographic and sampling factors, we find that experts present in countries pursuing a suppression strategy like Denmark and Norway systematically perceived their country's COVID-19 response more favorably in terms of saving lives compared to experts from a country pursuing a mitigation strategy like Sweden. This finding points to an emerging consensus on the inadequacy of herd immunity by natural infection as a strategy. In light of our comparison of the three countries pandemic preparedness systems and the result of our analysis of expert attitudes to pandemic responses, we suggest that policy divergence is more related to politico-administrative factors than policy preferences among national expert communities. Third, perceptions of pandemic response are associated with dominant ideas such as belief in focused protection. Experts supporting the idea of focused protection perceived their country's

COVID-19 response as an overreaction if they lived in a country pursuing a suppression strategy whereas they perceived it as adequate if they lived in a country pursuing a mitigation strategy. We find that support for a focused protection strategy is associated with a consistent policy preference across locations in the policy advisory systems, disciplinary affiliations as well as gender, age and metropolitan proximity.

The study makes a substantive contribution to existing scholarship on public health security, and the growing litterature on the COVID-19 pandemic, by comparing attitudes and policy preferences for national pandemic response among different national experts belonging to a similar public health regime. Recognition of the importance of experts in pandemic response should be part of current and future research agendas that focus on understanding variations in how global ideas of pandemic preparedness are materialized in public health regimes and politico-administrative systems. What is certain is that experts and expertise will have many and complex effects on pandemic preparedness systems and pandemic response in the future (Bal et al. 2020). Closely documenting the effects of expert networks tasked with managing and directing systems able to respond effectively to pandemic not only enhances their accountability but can also inform future policy prescriptions.

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Appendix A: Methods

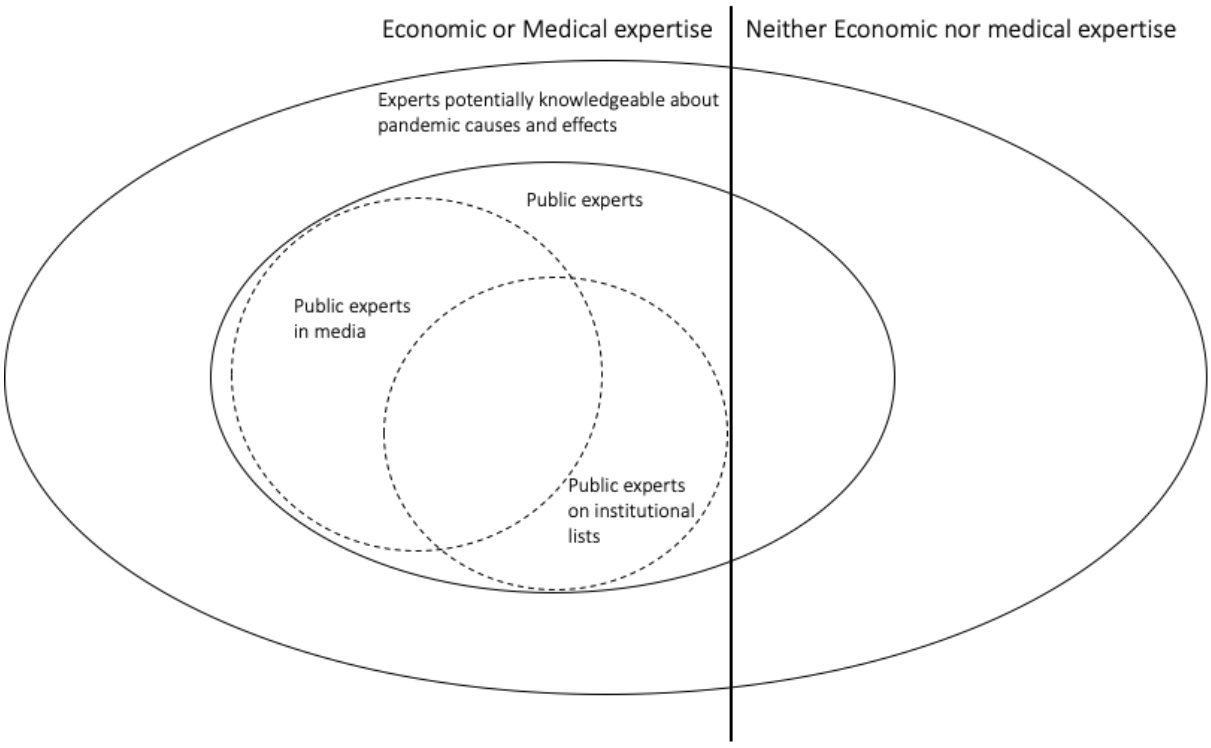
1. Sampling of experts from expert database

This specific group of health and economic experts that received the survey were extracted from a larger cross-national database of COVID-19 experts in Denmark, Norway, and Sweden, which we constructed in summer/fall of 2020. The database contains lists of public experts on COVID-19, which we define as individuals who have a formal position at a university, hospital, research institution or public agency and offer their expert assessment of pandemic causes, effects and policies in the public domain. The database of experts was developed in three steps from public media presence:

First, "presence in the public sphere" was operationalized to presence in national newspapers. Newspapers were chosen as the primary indicator for public sphere presence as they provide a stable empirical source for comparative analysis across the countries, and have shown to be an important site for expert statements, contestation, and discussion during the COVID-19 crisis (Hede et al. 2020). We collected articles from the 8 most read nation-wide newspapers in each country, published between 01.01.2020 - 31.10.2020, which included expert statements about the pandemic. Practically, we used the media databases "Infomedia" for Denmark, and "Retriever" for Norway and Sweden. These databases collect all articles and opinion pieces published in national media and make them available for text mining and search. We searched the databases for all articles using the searchterms ('COVID-19' OR 'corona/korona') AND ('expert' OR 'doctor' OR 'professor' OR 'associate professor' OR 'researcher', and similar expert related keywords) in each language. In Denmark, we used the name-recognition function of the database to collect all named experts. In Norway and Sweden we downloaded all articles and used a Named-Entity recognition algorithm to elicit all names. This process yielded around 10.000 names across all countries.

Second, a team of three researchers manually refined these names in an iterative process to build an "expert database". Names occurring more than twice were checked by at least two coders. Individuals were included if they had a formal association with a university, hospital, research institution or public agency and talked about COVID. This was done to sort out 'self-appointed experts' as well as private interests,

and to establish a firm rule of inclusion. On top, individuals had to work in the country as we were interested solely in national expert publics. Experts from the WHO or ECDC and other international organizations were thus identified but not pursued further, although we have measures for the amount of international experts in the different national media cultures. We introduced a further inclusion rule for experts to receive the expert survey. Experts had to have a background in public health, medicine, epidemiology, virology, molecular biology, biostatistics, or economics. These professional backgrounds were selected as they matched the economic and health dimensions of preparedness, which the survey sought to address. Finally, To control for selection biases associated with public media presence, an endogenous measure in the form of "presence on institutional expert lists" was incorporated into the design. Many universities and hospitals have published lists of institutionally identified experts in light of the pandemic. We collected publicly available lists from institutions represented by a minimum of two experts in the initial dataset. The figure below represents the conceptual sample space with the dotted lines enclosing our selected sample.



While these sampling strategies allow for a broad inclusion of different forms of expertise due to a decision rule based on institutional affiliation, ranging from health, the humanities to social science and natural science, the dataset should not be viewed as wholly representative of the countries considered. That is, it is possible that additional experts exist that we were unable to capture given the selected keywords and our focus on nation-wide media. Yet, to our knowledge, this study is the first to systematically map over time the frequency and display of different forms of expertise related to global health emergencies in the Nordics. We have researched this topic extensively, and have not yet identified any important experts that were not in our database.

Third, contact information was collected for all the sampled experts and their institutional and disciplinary affiliations coded using public profiles, CVs and job descriptions. These codes were checked three times by different coders to ensure validity, and the source of information is logged and associated with each individual. Based on this population sampling strategy, we identified 982 experts that were sent an online survey via email, open from November 17 to December 20, with two reminder mails sent to participants. The survey is available in appendix C. During analysis, we conducted a nonresponse bias analysis, to see if there were major groups of experts in the dataset that did not respond to the survey.

2. Nonresponse bias analysis

We conducted a nonresponse bias analysis by comparing the distributions of invited experts and survey respondents on a series of background variables; country, gender, institutional affiliation, seniority and discipline. The analysis reveals slight nonresponse bias of some groups, but very few below a 20% response rate. Notably, female experts are slightly underrepresented in our analysis. So are experts from management positions generally, and hospital positions in particular. These institutional locations have been put under the most strain during our survey period, which would explain a lack of time and interest to answer a survey.

Table 1: Response rates country

	Experts in database	Experts completed survey	Response rate per subgroup
Sweden	440	91	21%
Denmark	302	88	29%
Norway	240	53	22%

Table 2: Response rates gender

	Experts in database	Experts completed survey	Response rate per subgroup
Male	666	169	25%
Female	316	63	20%

Table 3: Response rates primary institutional affiliation

	Experts in database	Experts completed survey	Response rate per subgroup
Universities	623	160	26%
Hospitals	156	30	19%
Public administration or other research	203	43	21%

Table 4: Response rates seniority

	Experts in database	Experts completed survey	Response rate per subgroup
Senior (Full professorship or Chief Physician)	552	132	25%
Management	121	24	18%

Other (less than senior or management, eg. associate/assistant prof, MD)	339	79	23%

Table 5: Response rates disciplinary affiliation

	Experts in database	Experts completed survey	Response rate per subgroup
MED: Infectious medicine, other branches of medicine targeted at the level of the body	511	110	22%
PHEBS: Public health, Epidemiology, Biostatistics	175	57	33%
ECON: Economics, Health Economics	151	36	24%
LAB: Virology, Molecular biomedicine and other specialities targeting the cell level	145	30	21%

Paper 4

Knowledge mandates: A comparative approach to independent agencies' legal, technical, and moral authority

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Abstract

Agencies rely on authority to induce deference to their measures and recommendations. During the COVID-19 pandemic the longstanding authority of public health agencies to control and mitigate public health emergencies has been challenged from multiple sides. This raises the question of how to account for changes in the authority of independent agencies over time. Combining insights from the regulatory state literature and the sociology of professions, we suggest that agency authority depends on configurations of legal, technical, and moral authority, which together constitute their 'knowledge mandate'. We develop a comparative approach to understand how knowledge mandates change over time in response to changes in politico-administrative and expert environments. We illustrate this analytical approach by comparing changes to public health agencies' authority on the issue of public health security in Denmark, Norway, and Sweden from 2001 to 2021. We show how the divergent development of security expertise and politico-administrative factors conditioned the authority available to public health experts prior to and during the COVID-19 pandemic.

Keywords:

Agency, authority, expertise, historical comparative method, public health security

Status: Working paper aimed at G*overnance*

Introduction

The COVID-19 pandemic that rapidly spread across the world in 2020 resulted in strikingly different political responses in various countries. At the center of these replies stood public health agencies who took charge in advising governments on how to contain and mitigate the effects of the emerging disease. In handling these tasks of public health security, the depth and scope of the pandemic quickly revealed the intricate relationship between government, bureaucracy and scientific expertise that such regulatory organizations straddle. In countries like the US and Brazil, the authority of public health experts were sidelined, ignored or overruled by governments while they were subject to consensual uptake in countries like Germany (Jasanoff *et al*. 2021). Such differences in political deference to the authority of public health expertise does not fall neatly along typical division lines between democratic and authoritarian states or types of welfare regimes. Rather, the pandemic has brought into light significant national differences in the adherence, adoption, and contestation of public health expertise in countries usually considered similar (Authors XXXX). For example, in the similar Nordic countries of Denmark, Norway and Sweden, public health agencies have enjoyed strikingly different authority during the pandemic. In Norway, the government overruled the advice of its health agency in favor of alternative expertise. In Denmark, similar overruling of advice occurred whilst the responsibilities of its public health agency were later reduced and delegated to a new competing agency. In Sweden, the government neither overruled the advice of its public health experts nor made changes to their mandate. This puzzling divergence raises the empirical question of how otherwise similar countries interacted so differently with their public health experts. Theoretically, it touches upon the issue of how to account for the changing authority of already established agencies (Sending 2017). As scholars of regulation and governance, such a moment compels us to improve our understanding of *how the authority of independent agencies changes over time.* This paper develops an analytical approach to the question of agency authority change, using the Nordic countries as an illustrative case study. We suggest that *knowledge mandates* – the ability of agencies to induce deference in their stakeholders through claims to legal, technical and moral authority– underpin how authority is produced, maintained and transformed over time.

Independent agencies are an important organizational form of contemporary governance in capitalist-democratic states. With the spread of the regulatory state, independent agencies have assumed increased levels of authority in tandem with the state claiming a “legitimate monopoly

on the deployment and distribution of power through rule making, rule monitoring, and rule enforcement" (Levi-Faur 2013:39). Agencies are often responsible for carrying out these non-legislative rule-based tasks. In the literature, much attention has been paid to analyzing the spread of agencies across sectors (Jordana *et al*. 2018) and their de facto autonomy after delegation (Maggetti 2007). This has led to a focus on the dynamics of political delegation and agency emergence. However, these studies have focused less on how agency responsibilities and authority change over time once established. In part, this is a product of the literature's tendency to regard authority as a product of statutory arrangements and neutral technical capabilities, which change infrequently and primarily in times of agency creation (Slayton & Clark-Ginsberg, 2018; Hesstvedt & Christensen, 2021).

Historical institutionalism has developed important analytical concepts to explain incidences of institutional change and divergence (Rinscheid *et al*. 2020). According to this perspective, institutions develop and change in ways dependent upon antecedent events and conditions, which constrain their room to maneuver. Such path-dependencies are often seen as the effects of institutional legacies, sunk costs, decision branches, increasing returns or lock-in effects (Bell 2011). While providing the crucial insights that changes to authority must be understood in the context of 'sticky' institutional trajectories, we still need additional perspectives on how changes in expertise and authority are linked to institutional change. To do so, we suggest two conceptual advancements. The first is to develop an analytical approach that regards authority as constituted by a mixture of legal, technical, and moral forms of authority. The second is to expand the locations of the relations of authority to encompass systems outside the state.

This paper develops an analytical approach to the study of agency authority that integrates literature on agencies within the regulatory state with theories of how professionals engage in institutional and moral work to create, maintain, and transform jurisdictions to establish authority on certain policy issues (Suddaby & Viale, 2011; Meilvang, 2021). We suggest that agencies' authority is dependent on their 'knowledge mandate', which defines their capacity to exert legitimate control over a given policy issue in virtue of their legal, technical, and moral authority (Halliday 1985). Knowledge mandates are created and maintained both in relation to elected politicians, state departments as well as other agencies inside the politico-administrative system of the state and in relation to professional communities outside the state, in what we term the expert system. They define agencies' degree of control over tasks, the strength and weaknesses of

this control, their exposure to outside interventions and thus their ability to independently steer what can be done to a given policy issue (Abbott 1988).

We illustrate this analytical approach by examining the history and current transformations of public health agencies' authority on 'public health security' (PHS) in Denmark, Norway and Sweden. PHS emerged as a transnational policy issue in the early 1990s in response to growing concerns about the dangers of emerging infectious diseases to population health and national security. The COVID-19 pandemic has brought to light tensions inherent in PHS' link between health and security concerns as actors disagree about which kind of expertise is relevant for preparing and responding to pandemics, and which should dictate strategies and organization. In the language of logics, PHS can be seen as an unstable compromise between a logic of actuarialism favoring proportional responses based on historical risk analysis and extensive trials, and a logic of vigilance emphasizing radical uncertainty and precautionary responses to protect critical infrastructure and mitigate vulnerabilities (Lakoff, 2017). Discussions about PHS have so far been primarily framed in terms of either a medicalization of security (Elbe, 2011) or securitization of health (Rubin & Baekkeskov, 2020) whereby security experts increasingly seek to steer health policy and vice versa. This paper presents a third way to understand the historical development of PHS: as the creation and negotiation of new agencies and forms of expertise capable of maintaining pandemic preparedness and efficient health emergency response.

The paper contributes by building an analytical approach to the study of agency authority that highlights the legal, technical and moral authority of agencies and links changes in adjacent systems with transformations of authority inside the state over time. Knowledge mandates are the product of agency's linkages to the politico-administrative and expert system, and these relationships may rely on multiple forms of authority. Theorizing authority is important for explaining why and how agencies' jurisdictions change or remain stable over time. The next section introduces our analytical approach, which is operationalized in section two alongside a presentation of data sources. Section three analyses how public health agencies' knowledge mandates on PHS were configured in the period from 2001 to 2020, and how these mandates were reconfigured during the COVID-19 pandemic. We highlight how the authority of public health agencies is related to changes in the politico-administrative and expert system, and the historical development of new forms of security expertise in both. In doing so, we illustrate the usefulness of our approach in explaining change in agency authority over time and as a comparative method

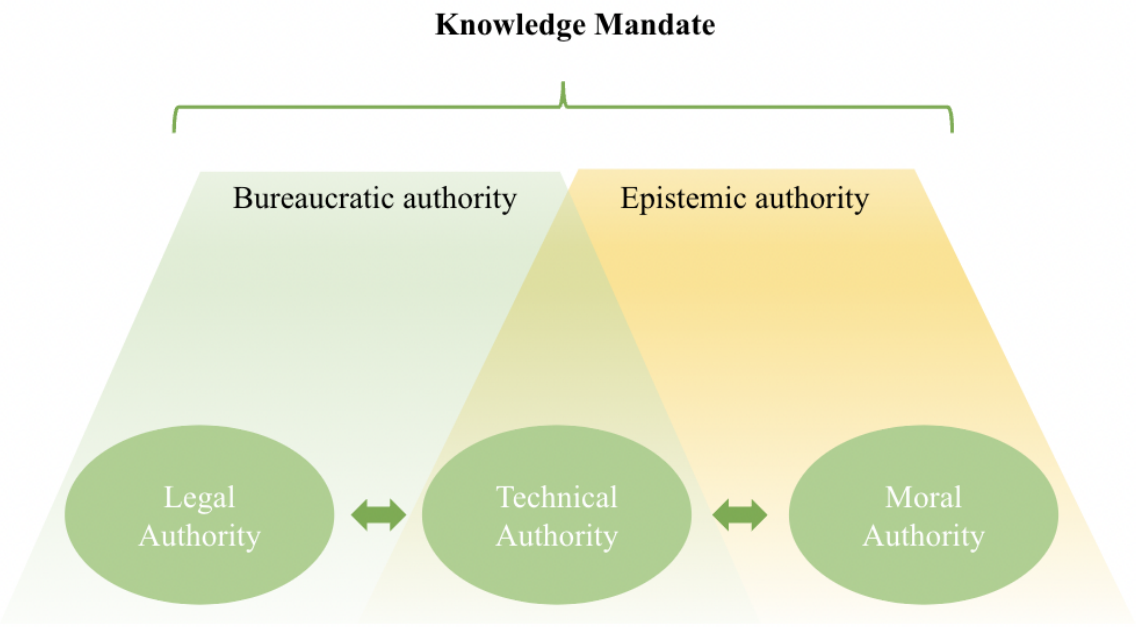
for studying authority in the regulatory state literature. We conclude by discussing the results of the comparison and future extensions of our approach.

Knowledge Mandates and Agency Authority

Our point of departure is that authority has to be approached as a form of power that can be defined as a relationship between a superordinate and a subordinate, which is recognized, and where the latter *defers* to the former (Sending, 2017). Here, authority does not flow from the predefined attributes of particular actors, but is constituted by changing relationships between actors. The crux of our reasoning is that agencies have to induce deference in their stakeholders, be it political actors, NGOs, the public or other agencies, in order to be recognized as authoritative on a given policy issue. Deference does not naturally flow from the office, but has to be continuously created and maintained. Importantly, as historical institutionalism has shown, agencies' abilities to induce deference are conditioned by wider historical developments and path dependencies (Bell 2011). The question we pose here is how to develop an approach that links changes in the authority of agencies with institutional change and divergence to better capture the social dynamism underwriting authority.

Bringing insights from the sociology of professions into the regulatory state literature, we suggest that agencies' claims to authority are encapsulated in their 'knowledge mandate', which defines their capacity to exert legitimate control over a given policy issue in virtue of their legal, technical, and moral authority (see figure 1) (Halliday 1985). To our mind, moral authority has not been given sufficient attention in neither the regulatory state literature nor historical institutionalism, especially in its importance during moments of crisis. Mandates define agencies' degree of control over tasks, the strength of this control and hence their exposure to outside interventions and thus their ability to independently control what can be done to a given policy issue (Abbott 1988). As such, they structure agencies' 'profiles of influence' (Halliday 1985) or 'action profiles' (Christensen *et al*. 2020) in relation to policy issues, although in a historically contingent and path-dependent manner. This approach is a sociological one where the object of study is the basis upon which actors claim and can be seen as having authority rather than a normative one, asking what forms of authority actors should normatively have.

Figure 1: Knowledge mandate and types of authority



We can distinguish the basis upon which agencies are recognized to have knowledge mandates as revolving around three different forms of authority. These forms are ideal types, and combine in a limited set of configurations. We operationalize them in the next section. *Legal authority* over a given set of tasks, rules or policy issues is related to agencies' position in legislative statutes (Gilardi 2002). A key element of authority here lies in claims to authority through references to regulatory responsibilities (Jordana *et al*. 2018), formal independence from elected politicians (Maggetti 2007), and managerial authority, which agencies employ to indicate disinterestedness and locate the issue within the boundaries of their jurisdiction (Lewallen 2021).

Technical authority refers to the act of inducing deference in stakeholders through claims to expertise. In the regulatory state literature, technical authority covers aspects of regulatory capacity (Jordana *et al*. 2018), expertise, understood as the effective provision of unique services (Carpenter 2001), and professionalism (Majone 1997). Technical authority includes agencies' claims to superior knowledge about how things work as well as the capacity to accomplish tasks within a policy area better and faster than others (Eyal & Polk 2015). In the case of PHS, this revolves around how to best design systems able to anticipate and mitigate emergencies brought

on by dangerous pathogens. Agencies who are seen as technically authoritative have a greater capacity to control policy content and implementation.

Moral authority refers to when agencies intervene in more general ethical areas and make claims to know what is right in terms of values and actions (Halliday 1985). This incorporates both the claim to represent the 'public interest' or the 'common good' (Meilvang 2021) as well as claims about how things should be. Agencies who are seen as a moral authority on a given issue have a greater capacity to influence the morality of others and shape what prescriptions should be transformed to implementation, particularly when they can fuse technical authority with a notion of how things should be (Seabrooke & Wigan 2016). During the COVID-19 pandemic, morality claims have been visible in claims to build pandemic response on a moral principle of proportionality or on a principle of precaution. It is important to note that moral authority is integral to technical authority, meaning that moral veilances are always present in technical deliberations (Halliday 1985).

We argue that agencies' ability to induce deference in their stakeholders depend on their position within a relationally constituted ecosystem of other organizations, such as other state agencies, government departments, and professional networks, to name a few (Abbott 1988). Analytically, we consider two ecosystems to be the most important audiences for legitimizing an agency's knowledge mandate: the politico-administrative system and the expert system. We use the concept of expert system to refer to the relevant expert actors in and across academic, professional and market fields. This understanding is inspired by the concept of 'interstitial field' (Eyal & Pok 2015), which represents spaces between fields as 'thick zones' of interface and overlap in which claims to expertise are made and recognized. For example, in the case of PHS, agencies' claims to technical authority must thus be seen as operating, between academic expertise, professions-based knowledge and the state (Stampnietzky 2013). The notion of an expert system is useful as it enables us to study areas of expertise that cut across academic, layperson, state, and professional communities. Across the politico-administrative and expert systems, knowledge mandates can be contested or supported by the arrival of other groups or organizations claiming authority on their issue area or by changing degrees of administrative task monopoly brought on by political intervention. Such changes may be the result of organizational developments outside the politico-administrative system. Previous research has shown how the dynamics of expert competition

revolve around control over the definition of policy problems in the politico-administrative system (Lewallen 2021).

In sum, our analytical approach to authority is minimal and rests on three central aspects. First, knowledge mandates are relationally configured within the politico-administrative and the expert system. Second, knowledge mandates are constituted in relation to specific policy issues. For example, public health agencies may have a strong knowledge mandate on the issue of PHS, but a weaker one on the issue of patient safety. Third, mandates set the preconditions for, and limits to, the exercise of legitimate authority on a policy issue. This, we believe, provides a flexible framework for comparing the authority of agencies vis-à-vis particular policy issues between countries.

Comparative Case Studies: Changing knowledge mandates on public health security

This study employs a historical comparative case design to explain politico-administrative processes of change. We suggest that comparative historical research is suited to study the relationship between politico-administrative transformations and changes in the authority of agencies (Pollilo 2011). This requires studying expertise in a non-static manner, which considers how experts move between systems and seek to enact credible expertise in either (Slayton & Clark-Ginsberg 2018). In the case of PHS, this is particularly relevant because the way the policy issue is embedded in the politico-administrative and the expert system is not fixed. Historical comparative work enables us to better specify the linkages between these systems over time and changes to the authority of actors within both. The case design consists of two parts, combined in a documentary-based research strategy. The first part systematically compares the development of PHS expertise in the politico-administrative and expert system in the three countries. The second part analyzes politico-administrative changes to public health agencies' authority on PHS during the COVID-19 pandemic.

Case selection

We selected Denmark, Norway, and Sweden as cases to control for a variety of factors that can otherwise plausibly explain variation in public health agencies' authority on PHS. First, the three countries have similar political, public health, and social characteristics, including high levels of institutional trust, which limits alternative explanations for administrative divergence. They are

all wealthy Social Democratic welfare states with universal health care, making them similarly capable of managing infectious disease outbreaks while also giving them similar financial capacity to install testing capacities, health care services, and undertake preparedness investments (Rubin & Baekkeskov 2020). Second, in the specific context of PHS, the countries have the same political, administrative, and infrastructural coping capacity to prepare for and respond to crises, based on the INFORM Index for Risk Management (Marin-Ferrer *et al*. 2017). Third, discussions around PHS have been present in all three countries throughout the 2001-2021 period, with each country having made historical adjustments to their preparedness systems. This comparative approach yields much analytical promise in explaining institutional change in instances where such choices are, in principle, available to decision makers (Rinscheid *et al*. 2020).

Document analysis: Method and data

Our case comparison relies on three corpora of comparable documentary sources. They were used as sources for our descriptive mapping of the politico-administrative and expert system on PHS as well as for in-depth historical evidence, the latter with the use of qualitative content analysis according to the indicators introduced below (Schreier 2012).

For the first part of the design, we rely on two corpora of official documents to trace the evolution of the politico-administrative and the expert system. For the politico-administrative system, we collected all national epidemic disease acts, pandemic preparedness plans as well as relevant public health emergency documents, vulnerability analyses and risk scenarios, supplemented by documentation of the organizations involved in pandemic preparedness at different periods in time (e.g. Baekkeskov *et al*. 2021). Due to the growing importance of emergency management agencies over time, we included documents pertaining to their history and yearly reports on their activities. Our analysis included intergovernmental organizations such as the EU and the WHO which have historically been important ideational sources of international convergence (Lakoff 2017). However, we find that neither have figured as sources of divergence in the three countries. For the expert system, we rely on a corpus of material obtained from professional journals, parliamentary hearings, research programs, and media statements. These served as a basis for a descriptive mapping of research institutions and professional organizations working with the issue across public health and security expertise.

For the second part of the design, we analyzed national COVID-19 commission reports that had direct access to civil servant accounts, government reports and press releases as well as media

statements by public health and preparedness agencies and experts. We also did a complete mapping of all official organizations established during each successive pandemic preparedness plan and in response to the COVID-19 pandemic, both ad-hoc and permanent, noting their background, responsibilities, and background for establishment.

Tracing knowledge mandates

In order to trace changing authority structures, we analyzed the corpora according to three sets of indicators, each related to a different form of authority. To identify legal authority, we rely on existing indicators of political independence and managerial autonomy, which circumscribe the de jure autonomy of agencies (Jordana *et al*. 2018). Since these measures are formally inscribed in the legal frameworks of agencies, they change infrequently, and primarily in times of agency creation or restructuring. Swedish agencies tend to score high on both political independence and managerial autonomy whereas Danish and Norwegian agencies tend to follow a model of high managerial autonomy, coupled with lower levels of political independence (Jordana *et al*. 2018). We confirm this pattern in our analysis but highlight its relationship with the changing regulatory responsibilities of public health agencies on PHS.

We trace technical authority by analyzing changes in regulatory responsibilities, that is, how comprehensive and extensive agencies' tasks are in relation to PHS (Jordana *et al*., 2018). Following our relational approach, technical authority is always recognized within a given task space defined by the boundaries of an issue. In the politico-administrative system of PHS, the task space is organized around how to prepare for and respond to emerging infectious disease emergencies. We suggest that changes in technical authority can be identified by tracing how tasks and responsibilities are lost or gained by agencies, by changing degrees of task monopoly, and by the amount of competing claims to expertise. We find that three main indicators to be the most important for identifying technical authority on PHS: position in the organizational hierarchy of pandemic preparedness systems, degree of control in diagnosing and declaring health emergencies and degree of control over measures to contain and limit the spread of disease. In the analysis, we show how the responsibility for these tasks have moved from being controlled by public health agencies to include various security agencies, although subject to national variation.

Moral authority is identifiable when agencies make prescriptive judgements or designate principles to build policy upon. Moral authority figures both in explicit claims about values and

implicitly in technical claims which mobilize assumptions that have moral implications (Halliday 1985). In the case of PHS, we find that moral authority revolves around whether pandemic preparedness should be built on principles of prevention and proportionality or principles of mitigation and precaution. Although this is a simplification of the moral positions identified in the analysis, it encapsulates the major moral viewpoints on the issue.

The expert system on PHS is organized around tasks related to activities, both proactive and reactive, to minimize the danger and impact of acute public health events that endanger people's health. Since the early 1990s, this system has grown increasingly inter-disciplinary and inter-professional (Lakoff 2017). This is especially due to the upstart of security experts on the issue, which started during the AIDS epidemic (Elbe 2009). Analytically, we handle this bifurcation by treating the expert system on PHS as two fields of expertise organized around 'public health' and 'security', which have grown increasingly interconnected over time. We find that three changes in the expert system are important for understanding changes to the authority of public health agencies on PHS: the emergence of societal security expertise and doctrines, the representation of security expertise in pandemic preparedness systems, and security-led contestation of public health expertise on the issue. As we show below, these changes are not equally present in Denmark, Norway, and Sweden.

Analysis

To illustrate the usefulness of our analytical approach, the following analysis compares public health agencies' knowledge mandate on PHS in Denmark, Norway, and Sweden, prior to and during the COVID-19 pandemic. Our comparative historical analysis necessarily sacrifices some specificity for clarity. We highlight how authority depends on positions in both the politico-administrative and the expert system and that variation between countries can be explained by tracing differences in how agencies' knowledge mandates are constituted by a mixture of legal, technical and moral authority.

Following our research design, the analysis is split in two parts. The first part explains how public health agencies' knowledge mandates on PHS were divergently configured in the three countries from the late 1990s until 2019. One of the main sources of this divergence was the emergence of novel security expertise and preparedness agencies in Norway and Sweden, who early on claimed technical and moral authority on PHS. In Norway, this early on led to a contestation of the

knowledge mandate of the public health agencies whereas, in Sweden, the mandate remained stable due to the relatively stronger legal authority of its public health agency. In Denmark, the relative absence of security expertise left its public health agency with an uncontested mandate for decades. The second part analyzes how these prior configurations conditioned politico-administrative processes of change during the COVID-19 pandemic.

The form of security expertise that emerged in Norway and Sweden's politico-administrative system and expert communities throughout the 1990s developed around the notion of 'societal security'. Societal security emphasizes security as the holistic protection of interdependent critical infrastructures and 'life-giving functions' from a plurality of dangerous events and hazards (Larsson & Rhinard, 2021). It was introduced as a means to rethink security and civil defence in a world less prone to singular military threats after the end of the Cold War and more vulnerable to a plurality of novel threats such as pandemics, terrorism and disasters, defined by their unpredictability and catastrophic potential. It has been used by Norwegian and Swedish preparedness agencies to describe their all-hazards approach towards crisis and risk management (DSB 2019; MSB 2011). The divergent national development of this form of security expertise is important as its emphasis on all-hazards early on enabled security experts to claim authority on the issue of PHS and contest the authority of public health experts. During the observed period, the concept of all-hazards preparedness was used to push for a centralization of preparedness responsibilities in new agencies with cross-sectoral crisis-response capabilities, the creation of research environments, and attempts to subordinate health agencies to novel crisis systems. In Denmark, societal security never significantly developed, with only a marginal uptake of all-hazards preparedness in the politico-administrative and expert system. Table 1 summarizes the main findings of the first part of the analysis, illustrating the comparative differences in the knowledge mandates of public health agencies on PHS in Denmark, Norway, and Sweden prior to the COVID-19 pandemic

Table 1: Configuration of knowledge mandates in 2019

	Denmark	Norway	Sweden
Health security doctrine	Infectious disease as a danger to the health of the population	Infectious disease as a danger to national security	Infectious disease as a danger to the social order
System of security expertise	Small community dominated by 'traditional' security concerns	Larger community dominated by societal security concerns	Larger community dominated by societal security concerns
Politico-administrative system on national security	Centered around Ministry of Defense Few links to expert system	Centered around Ministry of Justice Sustained links to expert system	Centered around Ministry of Justice Sustained links to expert system
Politico-administrative system on public health security	Few linkages between public health and security agencies	Permanent linkages between public health and security agencies	Intermittent linkages between public health and security agencies
Comparative strength of knowledge mandate of public health agencies in 2019	Weaker legal authority Stronger technical authority due to task monopoly Uncontested moral authority based on public health expertise	Weaker legal authority Weaker technical authority due to task distribution Contested moral authority based on public health and security expertise	Stronger legal authority Stronger technical authority due to task monopoly Uncontested moral authority based on public health expertise

Norway: Infectious disease as a danger to national security

Throughout the 1990s, a series of white papers and commission reports were published with the purpose of reimagining and broadening the Norwegian politico-administrative system around national security after the end of the Cold War (Morsut 2021). In 1999, the 'Vulnerability Commission' was established by the Ministry of Justice to assess the relationship between civil and military preparedness systems and the overall vulnerability of the country (Lægreid & Serigstad 2006). The commission recommended to expand the threat landscape facing Norway and center preparedness around peacetime threats like critical infrastructure breakdown and other unpredictable crises (NOU 2000). To capture the scope of this landscape, the commission proposed to change the concept of civil preparedness to societal security, emphasizing the need for an all-hazards approach to national security (Lægreid & Serigstad 2006). In the following years, Norwegian departments and agencies adopted societal security as a policy frame around security bills and directives (Morsut 2021). In 2003, the Agency for Societal Security and Preparedness (DSB) replaced the Agency for Civil Preparedness (ACP, established in 1970), marking a consolidation of this new form of security thinking. Since the mid 2000s, such all-hazards rationalities has continued developing through the work of the DSB, particularly through its focus on the vulnerability of critical infrastructure (DSB 2012). In 2018, Norway's first 'Minister of Societal Security' was appointed. In relation to pandemics, the DSB has since 2008 included pandemics as a scenario in their national risk assessments. In their 2014 and 2019 assessments, the DSB classified pandemics as the scenario with the highest probability and consequences compared to other crisis scenarios (DSB 2019), signaling a strong awareness of the security implications of infectious disease outbreaks among security experts and agencies in Norway.

The development of societal security in the politico-administrative system happened in tandem with the emergence of novel security expertise in the expert system on PHS. Since the late 1990s, dedicated research programmes (e.g societal security and risk programme, SAMRISK), research centers and educations centered around societal security have been institutionalized. This uprising was driven by demand for expert knowledge in the politico-administrative system and the strategies of agencies like the ACP and later the DSB, which have funded projects, programmes, and education on the topic. In 2009, the Centre for Risk Management and Societal Safety was established at the University of Stavanger. Further, since the early 2000s, the Societal Security

Conference has annually brought together concerned academics and civil servants on the topic. Together, these developments show the consolidation of new forms of security expertise organized around societal security in the expert system on PHS in Norway. As we show in the next section, the rise of this form of security expertise had a significant impact on the institutionalization of PHS in Norway, particularly through its emphasis on all-hazards preparedness.

Politico-administrative system on health security

In the beginning of the 2000s, the politico-administrative system on PHS in Norway was organized around two organizations; Norway's public health agency (NHA) and the newly established Norwegian Institute of Public Health (FHI), which brought together expertise on infectious diseases and vaccines with broader epidemiological and public health research. In 2001, the NHA published its first pandemic preparedness plan together with researchers from the University of Oslo. While the plan indicated an early link between overall preparedness and infectious diseases, the plan was, first and foremost, embedded in public health expertise. Security agencies were mentioned in the plan, but their role in the system was marginal and subordinate compared to the NHA. Initially, a potential pandemic thus constituted a health crisis, not a threat to national security in Norway.

From 2005 and onwards, increasing interaction between the NHA and security agencies can be detected in pandemic preparedness plans and overall preparedness legislation. This led to an early contestation of the authority of the NHA on the issue. Following the 2004 Tsunami Disaster in Indonesia, a governmental crisis council was established alongside a "Crisis Support unit" under the Ministry of Justice and Public Security (MJPS) to assist during crises, including health crises. In 2014, following the 2011 terrorist attack on Oslo and Utøya, the MJPS became the default leading actor in civil crises, signaling demand for a security-inclined organization to coordinate actions during all kinds of emergencies. Lastly, in 2015, the increasing linkages between security and public health expertise became evident with the 2015 CBRNE strategy published by the Ministry of Defence, the Ministry of Health and Services, and the MJPS, which not only highlighted Norway's all-hazards approach, but also the centrality of security organizations in handling emerging infectious disease outbreaks. Together, these changes to the pandemic preparedness system weakened the technical and moral authority of the NHA by placing them hierarchically beneath a security organization during health emergencies.

A consequence of the increasing consolidation of security expertise in the politico-administrative system on PHS was the reframing of pandemics as constituting a threat to national security. This was apparent in Norway's 2018 pandemic preparedness plans, which highlighted both an all-hazard approach to infectious diseases as well as their consequences for societal security:

> Outbreaks of infectious diseases dangerous to public health can potentially have large societal consequences and affect established and judicial ordinger within health preparedness and societal security in general (HoD 2018:5).

These gradually consolidated links between security and public health expertise became further institutionalized with the establishment of the Preparedness Committee Against Biological Incidents in 2018. The committee was tasked with monitoring the biological threat environment and was to have a main coordinating function among the most central decision makers during a pandemic, bringing together public health organizations as well as the military, preparedness agencies and several societal security experts.

These brief historical focus points highlight how pandemics were seen to pose a threat to both public health and national security prior to COVID-19 in Norway. This health security doctrine was supported by a politico-administrative task space on PHS, which saw security agencies and experts claim authority on the issue over two decades. Together, the advent of security experts, alongside its weak legal authority, provided Norway's public health agencies with a weak knowledge mandate prior to 2020.

Sweden: Infectious disease as a danger to the social order

The evolution of security expertise in the politico-administrative and the system of expertise in Sweden bear many resemblances to the Norwegian trajectory. In 1985, the Swedish Agency for Civil Preparedness (ÖCB) was established under the Ministry of Defense to steer civil defense. Early on, the ÖCB pushed for broadening the security policy frame to include various non-military threats and hazards (Larsson 2021). Throughout the 1990s, this reorientation of preparedness towards a plurality of hazards was supported by a number of governmental investigations, commissions, and bills. In 1992, the Threat and Risk Investigation concluded that Sweden was

vulnerable to new and emerging threats (SOU 1995). Subsequent government bills in 1995 on the overall readiness against severe strains on society in peacetime, brought this widened security approach into the heart of Swedish national security (Larsson 2021). In 1999, the Commission on Vulnerability and Security recommended discontinuing the ÖCB along with the idea of civil defense altogether and replacing it with a new crisis management agency capable of preparing for novel unexpected and catastrophic threats (SOU 2001). Although the commission did not advance the notion of societal security explicitly, its focus on all-hazards planning bore many similarities to the Norwegian turn toward societal security.

Sparked in part by the 2001 New York attacks, the ÖCB was discontinued and replaced by the new Swedish Emergency Management Agency (KBM) in 2002. While still under the authority of the Ministry of Defense, the KBM further consolidated all-hazards preparedness in Sweden, among others, through the adoption of societal security (see CRN 2004). The KBM was merged with two other Swedish agencies in 2009 to establish the currently operational Swedish Civil Contingencies Agency (MSB), now under the Ministry of Justice. Like the KBM, the MSB promotes an all-hazards thinking and whole-of-society approach to security, targeting a wide array of different risks, threats, and disasters of environmental and human-induced kind. Today, it is centrally responsible for all things security-related, including coordination, training, evaluation, and research funding (Larsson 2021).

Similarly to Norway, the development of an all-hazards approach in Sweden's politico-administrative system has been accompanied by the emergence of novel security expertise in the expert system. The increasing focus on all-hazards preparedness created demand for expertise on the new threat landscape. In the ensuing decades, preparedness agencies like the ÖCB, the KBM and later the MSB helped to establish research institutions, educational programmes and lasting relationships between this emerging field of security expertise and the politico-administrative system. This was, in part, driven by the movement of actors from one system to the other (Larsson 2021). In 1997, an expert community on societal security took shape with the establishment of the Center for Crisis Management Research and Training (CRISMART), with financial support from the ÖCB. In 2004, KBM funds enabled the establishment of the new Center for Asymmetric Threat Studies at the Defense University in 2004. In 2018, CRISMART was integrated into the newly established Center for Societal Security, which continues its research program while also institutionalizing the concept of societal security further in Swedish security expertise.

Politico-administrative system on health security

Like Denmark and Norway, Sweden's politico-administrative system on PHS was organized around two institutions in the early 2000s: the National Board of Health and Welfare (NBHW) and the research based Swedish Institute for Communicable Disease Control (SCDC) with integrated ties to the university sector (Akerberg 2016). Due to the new threat landscape, Sweden focused extensively on improving and centralizing its PHS capacities at a planning and organizational level throughout the 2000s. However, compared to Norway and despite its large security expert community, Sweden's public health agency maintained a strong knowledge mandate during the 2001-2020 period.

Sweden published its first pandemic preparedness plan in 2006. From the onset, the plan contrasted the plans of both Denmark and Norway as it greatly emphasized the wider societal effects of infectious diseases beyond just health concerns. Infectious diseases were framed as a fundamental threat to the collective stability of society rather than solely the health care system (Baekkeskov 2016). This aspect is apparent in the 2004 Swedish Infectious Disease Act, which, besides outlining rules about the handling and reporting of infectious diseases, introduced a distinction between three types of diseases: Infectious Diseases, Infectious Diseases Dangerous to Public Health, and Societal Dangerous Diseases. An infectious disease was a disease caused by infectious substances whereas an infectious disease dangerous to public health was a highly infectious disease, with a high velocity and ability to do serious harm. A societal dangerous disease was defined as:

> Societal dangerous diseases refer to general dangerous diseases that can spread in society that involve a serious disturbance or imminent risk of a serious disturbance in important societal functions and that require extraordinary infection control measures (Socialdepartementet 2004:168).

This discourse mirrored the concerns of the WHO at the time where arguments about the societal disruptive effects of infectious diseases were increasingly appearing (Lakoff 2017). In contrast, Denmark and Norway operated solely with the categories 'infectious diseases' and 'infectious diseases dangerous to public health' prior to COVID-19. One outcome of Sweden's focus on

seeing health crises as catalyzers of societal crisis became apparent during the H1N1 pandemic where Sweden, opposite of Denmark, performed population-wide vaccination. This was, among others, based on the idea that the purpose of pandemic response was to ensure business continuity through illness prevention (Baekkeskov 2016). This contrasted with the Danish response, which saw the prevention of death as its primary purpose.

With the development of security expertise in Sweden, its politico-administrative system on PHS was increasingly influenced by the strategies of its preparedness agencies. For example, the MSB was mentioned 26 times in Sweden's 2013 pandemic preparedness plan. In comparison, the 2013 Danish plan only mentioned the Danish Emergency Management Agency (DEMA) 3 times. Further, public health agencies in Sweden are part of the National Forum For the Direction and Coordination of Exercises, led by the MSB. Here, the MSB leads crisis exercises to ensure a systematic approach to preparedness across sectors within their societal security approach. However, unlike Norway, the legal authority of Sweden's public health agencies has largely shielded them from interference from security agencies.

Prior to the COVID-19 pandemic, the knowledge mandate of the Swedish public health agencies has been reconfigured by a number of public sector reforms, which have sought to make pandemic preparedness more efficient. This, however, has come at the cost of cutting historical ties with the public health expert system. Until 2010, SCDC had a research-intensive profile with several staff holding professorships at Karolinska Institutet. In 2008, a governmental report suggested streamlining the SCDC by cutting its ties with Karolinska (SOU 2009). Between 2010 and 2012, this led to the dismissal of several professors. In the same period, the shared responsibility of preparedness between SCDC and the NBHW was identified as a weakness, requiring a more coherent authority-structure on public health (Socialdepartementet 2012). This led to the establishment of the Public Health Agency of Sweden (FHM) in 2014, a merger of the SCDC, the NBHW and Statens Folkhälsoinstitut. While such specialization has centralized the authority of pandemic preparedness, it has also made the FHM increasingly vulnerable to external contestation given its weaker linkages to the expert system (Akerberg 2016).

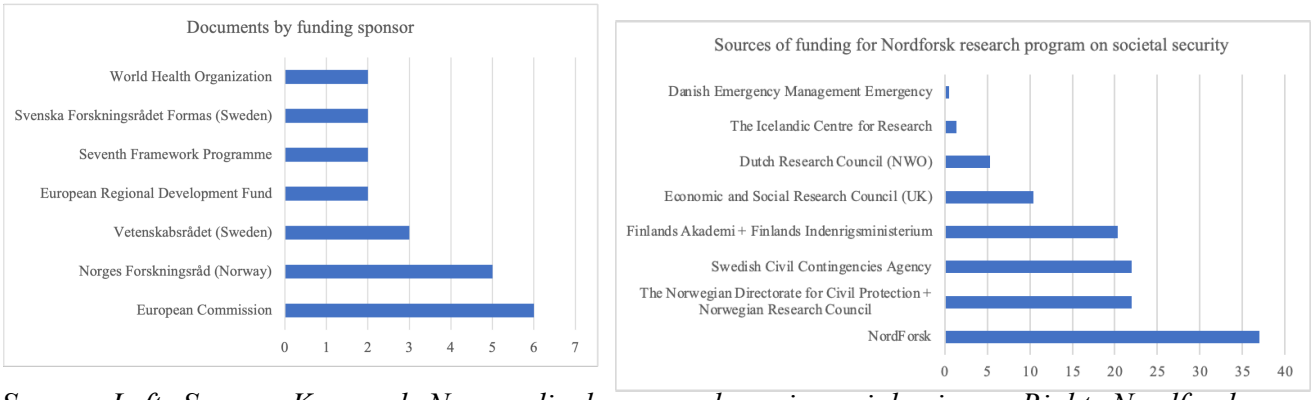
Denmark: Infectious disease as a danger to the health of the population

Compared to Norway and Sweden, societal security has gained far less traction in both the politico-administrative and the system of expertise in Denmark. Although some kin-like concepts

and practices have emerged over time in DEMA and the Ministry of Defense, societal security or all-hazards have never developed deep roots in either of the two systems, resulting in a non-existing formal adoption of the concept in Denmark (Larsson & Rhinard 2021). Like its Scandinavian neighbors, shifting Danish governments established commissions throughout the 1990s to reform civil preparedness. In 1989, the preparedness commission was established to discuss how a more integrated and coordinated disaster preparedness could be achieved during war as well as peace time. This call for integration led to the formation of DEMA under the Department of the Interior, replacing the previous Agency for Civil Defence. Following the 2001 New York attacks, DEMA was moved to the Department of Defence. In 2004, the Danish government established a 'vulnerability commission' to undertake an investigation of the country's vulnerability to various threats. Despite sketching a new threat landscape beyond military invasion with reference to Norway and Sweden, the investigation does not mention societal security nor the importance of all-hazards thinking (Beredskabsstyrelsen 2004). This is also evident in the role of DEMA in the politico-administrative system. For instance, the DEMA is first and foremost an *emergency management* organization responsible for rescue services rather than preparedness, which is more sector-dependent in Denmark. It is thus more traditional in its conceptualization of preparedness tasks and concerns, one prominent example being its strong focus on fire hazards. This is also reflected in the fact that DEMA operates under the Department of Defence whereas the DSB in Norway and the MSB in Sweden both operate under the Department of Justice. One important factor for the lack of reorientation in the system is the activist foreign policy promoted by Anders Fogh Rasmussen during his period as prime minister in the early 2000s. Here, Danish security policy focused on supporting international interventions overseas, leaving less of a focus on national security.

Compared to Norway and Sweden, Denmark has seen little development of new security expertise. Instead, security expertise has historically been occupied with military threats (Berling 2021), with security experts situated at the Royal Danish Defense College and the Center for Military Studies. These organizations focus primarily on military operations, leadership, and war strategy (FAK 2021). This is, in part, due to the lack of funding support from DEMA and the politico-administrative system. Figure 2 highlights differences in the funding patterns for preparedness and societal security in the three countries. The left figure represents sponsors of non-medical preparedness research and the right the sources of funding for a Nordforsk research program on the topic. In both figures, Danish funding is either marginal or absent.

Figure 2: Funding patterns on preparedness and societal security



Source: Left: Scopus. Keyword: Non-medical preparedness in social science. Right: Nordforsk (2020)

Politico-administrative system on health security

Given the weak national security systems in Denmark, the development of PHS has largely taken place without the adoption of and presence of security doctrines and experts. Instead, it has remained under the control of the Danish Agency of Public Health (NHA) and the research based Statens Serum Institut, which have had a strong knowledge mandate on the issue prior to the COVID-19 pandemic.

Denmark published its first pandemic preparedness plan in 2006. The plan was reiterated in 2013 and was undergoing an update before the pandemic. Compared to the plans of Norway and Sweden, security ideas and agencies are only marginally represented in them as well as the broader politico-administrative system on PHS depicted. As already noted, DEMA is mentioned three times in the pandemic preparedness plan from 2013 whilst the defence branches are not mentioned at all. This divergence is also apparent in the way pandemics are defined in Denmark. Whereas both Swedish and Norwegian plans emphasize the societal disruptive effects of infectious diseases, the Danish plan defines the purpose of pandemic response as the reduction of illness and death. In Denmark, pandemic preparedness is thus primarily framed as a public health investment and intervention (Holmberg & Lundgren 2018). Another example of the authority of public health experts is the 2016 Communicable Disease Act. It stands as a testimony to the technical authority of the NHA on PHS. The act charged the DHA with the authority to diagnose and declare health emergencies as well as to classify diseases as either infectious diseases or infectious diseases dangerous to public health. It affirmed the DHA as the authority on developing measures to respond to health crises (Rasmussen 2021). In contrast to Norway and Sweden, the DHA, and not

the government, was legally responsible for categorizing infectious diseases as constituting a particular threat to public health or not.

Changing Knowledge Mandates during the COVID-19 pandemic

In light of the historical account of the configurations of public health agencies' knowledge mandate on PHS in Denmark, Norway, and Sweden, the second part of the analysis explores to what extent these mandates have undergone change during the COVID-19 pandemic and through what politico-administrative processes. In all three countries, the authority of public health agencies have been contested, although in different ways and with different outcomes. While the Danish government has made permanent adjustments to the politico-administrative system on PHS, no such far-reaching institutional change has occurred in Norway or Sweden.

In Norway, the knowledge mandate of the NHA has been weakened during the pandemic. This has happened through two processes: a reduction of control over pandemic response measures and expert contestation. First, in March 2020, the FHI suggested a strategy, which only regarded lockdowns measures as relevant if the disease had significantly spread throughout society based on a principle of proportionality (NOU 2021:131). However, due to a lack of trust in their strategy, the Norwegian government announced a societal-wide lockdown based on a principle of precaution two days after the FHI's assessment. This positioned politicians rather than the NHA as moral architects of pandemic response. Second, due to its strong security expert system, the technical authority of the NHA has been contested by experts calling for an even greater role of security organizations on PHS. Security experts have called for a need to ensure centralized preparedness authorities capable of leading in times of crises and adequate preparedness (Fjeldavli 2020). According to these experts, public health experts are incapable of securing preparedness and handling uncertain scenarios without sufficient data. As a security expert comparing pandemics to armed conflicts remarked: "You will never have the full overview and all the information you need to take action. You must therefore learn to handle that uncertainty in the best way possible" (Boe in Olsen 2020). In Norway, this call for centralization has also been emphasized by the 'Corona Commission' responsible for assessing the government's handling of the COVID-19 pandemic (NOU 2021:64). Yet, compared to Denmark, further reconfiguration of the mandate has not been detected yet.

Despite the outspoken criticism of Sweden's COVID-19 response (Claeson & Hanson 2021), the knowledge mandate of the FHM has undergone limited reconfiguration during the pandemic. Unlike Denmark, no legal or institutional changes to the regulatory responsibilities of the FHM can be detected and unlike Norway, the FHM's proportionality based response strategy was not overruled by politicians, largely due to their legal authority. What has, however, been brought into question is the FHM's technical authority on PHS. In Sweden, both critical public health and security experts have contested the strategies of the FHM during the pandemic. Security experts like the Director of the Center for Societal Security, Frederik Bylander, have criticized the politico-administrative system on the issue for being too sector-dependent and in need of centralization under an over-arching crisis organization led by crisis specialists (Sveriges Radio 2020). Further, the Swedish COVID-19 Commission has criticized the country's pandemic preparedness for being inadequate, too narrowly focused on influenza viruses and individuals, lacking a broader whole-of-society perspective (SOU 2021).

Of the three countries, the DHA's knowledge mandate has undergone the most significant change during the pandemic. Interestingly, these changes have not been driven by criticism from security experts as observed in Norway and Sweden but by leading politicians and high-level civil servants. We take this as a result of the limited security expert system in Denmark prior to the pandemic and the DHA's weak legal authority. The knowledge mandate has been contested through three processes: loss of control over measures to contain and limit the spread of disease; weakening of position in pandemic preparedness system; and loss of control in diagnosing and declaring health emergencies. First, like Norway, the DHA initially suggested non-lockdowns measures in their response to the pandemic based on a principle of proportionality. This measure was overruled by the government, which announced a societal wide lockdown in March 2020 based on a precautionary principle. The government has since established the Epidemic Commission, composed of different high-level civil servants, to recommend measures rather than solely use the DHA. Second, the position of the DHA in the pandemic preparedness system has been reduced due to the establishment of the Critical Supply Agency responsible for 'soceietal preparedness' under the Ministry of Justice in August 2020. Mirroring the DSB and the MSB, the agency is a permanent continuation of the central operative committee with strong ties to the police and the military, which have been involved in coordinating emergency management since 2005. The new agency was created due to political demand for separating the treatment of patients and preparedness (Regeringen 2020). The DHA was to do less of the latter in the future. Third, a

new edition of the communicable disease act was passed in 2020, which included a new category of diseases: ‘societal critical diseases’. It was similar to an infectious disease but whose “spread involved or would be in danger of causing serious disturbances to important societal functions” (Retsinformation 2021). Importantly, and contrary to the previous act, it was the Minister of Health rather than the DHA who had the authority to declare a disease as a societal critical disease. Whereas the minister saw it as a necessity to secure the governmental authorities scope for action and efficient use of resources, the proposal was met with harsh criticism from public health experts over the lack of epidemiological expertise (Smith 2020).

Case Comparison

Table 2 reconnects our historical analysis with the developments during the COVID-19 pandemic. Our analysis reveals a general weakening of agency knowledge mandates, either prior to or in response to the COVID-19 pandemic. Historically, the diverging national development of security expertise led to variable sources of technical and moral authority available for experts to contest the public health agencies' knowledge mandates in the politico-administrative system. In Norway, the development of security expertise early on led to a contestation of the knowledge mandate of the public health agencies, for example through reorganizations of responsibilities within the national pandemic preparedness plan, whereas in Sweden, despite not losing technical authority on pandemic preparedness following reforms, the agency’s connections to the public health expert system was limited. In Denmark, the weak community of novel security expertise left the public health agencies a relatively uncontested knowledge mandate on the issue for decades. However, during the COVID-19 pandemic, the knowledge mandate was significantly contested as its legal, technical, and moral authority was called into question.

Table 2: Configuration and reconfiguration of knowledge mandate

	Denmark	Norway	Sweden
Configuration of knowledge mandate of public health agencies prior to pandemic	Weaker legal authority Stronger technical authority due to task monopoly Uncontested moral authority based on public health expertise	Weaker legal authority Weaker technical authority due to task distribution Contested moral authority based on public health and security expertise	Stronger legal authority Stronger technical authority due to task monopoly Uncontested moral authority based on public health expertise
Reconfigurations of technical authority	Reduction of control over: • Health emergency diagnosis and declaration control • Pandemic response measure • Position in pandemic preparedness system	Reduction of control over: • Pandemic response measure	No reduction of control over diagnosis and measure nor position in pandemic preparedness system
Reconfigurations of moral authority	Change in logic of response from proportionality to precaution	Change in logic of response from proportionality to precaution Security contestation	No change in logics of response based on proportionality Security contestation

The analysis highlights the importance of legal authority for the short-term capacity of civil servants and experts to protect their jurisdiction against pressure from policymakers. This necessary condition seems to explain how in Sweden during the pandemic, the knowledge mandate was protected by several constitutional constraints, which significantly limited the ability of policymakers to intervene. In Denmark, by contrast, the arrangement of ministerial governance enabled policymakers to do exactly that. Dissatisfaction with the technical authority of the DHA led to sweeping changes to the regulatory responsibilities and the delegation of tasks to new competing agencies. However, unlike Sweden and Norway, there were very few resources in the security expert system to support this reconfiguration (although the new Danish Critical Supply Agency was largely staffed with bureaucrats from the security sectors). Despite this public narrative, the Danish Medical Association quite clearly interpreted the change as a professional struggle, and have criticized the push for more security expertise, declaring that epidemics require "...first and foremost medical knowledge" (Ullum 2020).

Overall, the analysis highlights how national systems of expertise outside the state are important for authority inside the politico-administrative system. Thus, while in Denmark, contestation of the DHA's mandate appears to have abated post-crisis, both the Norwegian and Swedish national corona commissions in their conclusions push for a more centralized (and less public health dominated) organization to improve all-hazards preparedness and emergency response. While the

high legal authority of the FHM has insulated it short-term, contestations of its technical and moral authority might lead to reforms in the future.

Conclusion

It is a necessity for regulatory organizations to be recognized as authoritative if their activities and interventions on a given policy issue are to be seen as effective. Much literature on the regulatory state regards such authority as flowing from the political act of delegating a mandate which bestows agencies with the bureaucratic authority to regulate and govern within legally and technically defined boundaries. Drawing on more recent work integrating new perspectives on professions, we posited that besides legal and technical authority, knowledge intensive regulatory organizations also depend on moral authority for their legitimacy, and that analytical frameworks should integrate such authority to account for agency stability and change. Using the concept of 'knowledge mandate', we provided an analytical framework to compare the configurations of independent agencies' authority. We illustrated its usefulness by applying it to explain the (re-)configurations of the authority of the public health agencies on PHS in the years leading up to and during the COVID-19 pandemic. As our comparison highlights, knowledge-intensive agencies such as public health agencies serve to obtain and preserve legitimacy and jurisdictions in both the politico-administrative system and the expert system. Thus, agencification itself can be driven by expert and professional developments or be the main driver behind the emergence of expertise.

Empirically, the comparison revealed how knowledge mandates on the issue of PHS were divergently configured in the three countries. One of the main sources of this divergence was the development of novel security expertise in the expert systems of Norway and Sweden. In Norway, this early on led to a contestation of the knowledge mandate of its public health agency whereas, in Sweden, the mandate remained uncontested due to the relatively stronger legal authority of the agency. In Denmark, the lack of presence of security expertise left the public health agency with a relatively uncontested knowledge mandate on the issue for decades. However, during the COVID-19 pandemic, its technical and moral authority was contested by politicians, enabling security experts within the state to claim more authority on the issue.

Our framework contributes to theoretical discussions on regulation and governance on three counts. First, our theoretical reasoning on the multiple sources of agency authority contributes to

the development of scholarship on the conditions of authority over policy issues. This complements existing accounts that highlight the political, moral and 'co-produced' character of expertise in regulatory practice (Slaughter & Clark-Ginsberg 2018) while integrating such insights into discussions about authority. Our stress on the bureaucratic and epistemic underpinnings of authority encapsulated in the concept of knowledge mandates provides a way to study the dynamics of "changes in the regulatory process" (Lewallen 2020). When dynamics of regulatory transformations are placed in a knowledge mandate framework, it is possible to identify the legal, technical, and moral premises on which they are structured and provide propositions about how they are maintained and prone to change. Our focus on knowledge mandates points to important variations in how the structure and development of politico-administrative systems and systems of expertise provide conditional factors for the authority of agencies on the issue of PHS. Important sources of variation include: i: the development of competing expert systems around the policy issue, ii: the degree to which agencies are legally protected from political intervention; iii: how much particular experts are able to influence policy ideas; iv: the degree to which state agencies are able to further support the development of an expert system around their issue area; and v.: political will that follows from issue salience. These insights may serve as propositions for future research on how and when pandemic preparedness systems will undergo change in domestic settings and the implications hereof.

Second, we suggest that the jurisdictional competition among regulators and legislators for authority over policy issues introduced by Lewallen (2020) rely on the strength of the bureaucratic and epistemic authority of the competitors. Authority is not only reflected in the legal and bureaucratic opportunity structures defined by policymakers but also their relationships to an expert system and the social environment in which they act. Such beyond state environments may also prove important in 'multi-agencies dilemma of delegation' scenarios (Moschella & Pinto 2021). Highlighting sources of authority through legitimacy in politico-administrative and expert systems is necessary to further our understanding of the dynamics of regulatory reform as well as the sources of authority for non-democratic regulatory organizations.

Third, our framework helps us to conceptualize how regulatory systems on PHS are likely to progress based on legal, technical and moral dynamics. PHS represents a regulatory area that has historically been of relatively low issue salience and marked by national regulation and authority (despite attempts by the WHO and the EU to harmonize systems). From our analysis we would

propose that such variations are, in part, a product of the divergent development of systems of expertise around all-hazards security policy and perception, which generate different conditionality for the authority of public health agencies on the issue. Similar to tax and financial regulation (Christensen *et al*. 2020), this opens up for a view of PHS as emerging not purely from (trans-)national politics and politico-administrative organization, but from their interplay with expert and professional practices (Larsson 2020). Such a focus has so far been limited in research on PHS institutionalization, which has been dominated by accounts of the coalescence of a 'global health security regime', based on the WHOs IHR (Lakoff 2017).

As with other frameworks, there are situations where an attention to knowledge mandates may prove less fruitful. First, knowledge mandates are more suited to studying inter-agency as compared with intra-agency dynamics. This means that the framework is probably less suited to studying agencies containing several cognitive cores and where professional identity may be less important for the organization's overall authority. However, the framework is open to further development and integration with micro- and network-oriented analyses. Second, the framework might be most appropriate for particular kinds of 'knowledge intensive' agencies where expert labor in the state is present, although analyses showing little compatibility between agency activities and the expert system would point towards low epistemic authority.

To our knowledge, our comparison is the first to compare the domestic institutional development of PHS across countries, expert areas, and time. This comparison supplement the burgeoning literature on factors related to COVID-19 performance such as trust, public sector capacity, neoliberal state reform, and salutary capacity. While we do not seek to explain specific COVID-19 public policies or 'overall performance', the knowledge mandates of public health agencies must be interpreted as conditioning factors in countries' pandemic response capacities. Future research can develop further propositions on the conditions identified in the paper by comparing the countries to less similar cases and investigate the likelihood of regulatory reforms given the existing arrangements between security and public health expertise in politico-administrative systems.

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