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The technocratic tendencies of economists in government bureaucracy

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Abstract

Economists are by many accounts the most influential group of experts in contemporary political decision-making. While the literature on the power of economists mostly focuses on the policy ideas of economic experts, some recent studies suggest that economists also hold particular technocratic ideas about the policy process. The article systematically tests this argument. Focusing on economists within government bureaucracy, the study is based on a quantitative analysis of a large-scale survey of Norwegian ministerial civil servants. It finds that economists are more likely to hold technocratic role perceptions than officials with other educational backgrounds only if they work in the finance ministry or in higher administrative grades. The findings contribute to scholarship on the political sway of economists and to debates about technocracy and the technocratic views of civil servants.

1 | INTRODUCTION

Economists are by many accounts the most politically influential group of experts in contemporary political decision-making (Hirschman & Berman, 2014). There is by now a vast literature on the central role of economists and economic ideas in policy-making and their effect on the content of economic policies, most notably in the direction of economic liberalization (e.g., Ban, 2016; Chwieroth, 2010; Widmaier, 2016). This literature covers a variety of cases,

including the construction of the North American Free Trade Agreement (NAFTA) (Fairbrother, 2014) and of the EU Economic and Monetary Union (EMU) (McNamara, 1999), and the adoption of economic liberalization reforms in countries like Italy (Quaglia, 2005) and Israel (Mandelkern, 2019).

Yet, some recent studies suggest that the policy influence of economists is not only linked to their ideas about the content of policy but also to their *ideas about the policy process and the proper role of economic knowledge in this process*. These studies argue that economists advance theories of government that imply depoliticized decision-making (Mandelkern, 2019), that economically trained bureaucrats favor an activist approach to policy advice (Christensen, 2017), and that economists are more willing than other professionals to advocate policy solutions to decision-makers (Fourcade, Ollion, & Algan, 2015). The common theme is that economists hold particular "technocratic" views about the policy-making process, which center on the belief that political decisions should be based on science and expertise rather than on political ideology and partisanship. These views, it is suggested, have contributed to the shift of political power and decision-making authority from politicians to economic experts.

While appealing, this argument is based on qualitative studies from specific policy domains and organizations and has not been systematically tested through quantitative analysis. Do economists hold more technocratic views about policy-making than other professional groups, and under what conditions? Our study addresses these questions by investigating the role perceptions of *economists in government bureaucracy*, who given their deep involvement in formulating policies and advising politicians play a leading role in many studies of the power of economists and economic ideas (e.g., Christensen, 2017; Quaglia, 2005).

We investigate whether civil servants with economics training are more likely to hold *technocratic role perceptions* than civil servants with other educational backgrounds. We conceptualize technocratic role perceptions as consisting of three dimensions: a scientific approach to policymaking, a preference for elitist decision-making and low tolerance for partisan politics (Bertsou & Caramani, 2019). We also examine whether technocratic role perceptions depend on the organizational context and position in which economists work: working for the finance ministry or not, the share of economists in the ministry, and administrative rank. We examine these relationships within the context of an advanced democracy with consensus-driven politics and a merit-based bureaucracy, by analyzing data from a large-scale survey of civil servants in Norwegian ministries.

The empirical analysis shows that economists are more technocratic than other civil servants only under specific conditions. On average, economists are slightly more technocratic than other civil servants. Yet, the relationship between economic training and technocratic role perceptions depends strongly on department and administrative grade: Economists are more technocratic than officials with other educational backgrounds *only when* they work in the finance ministry or in higher administrative grades. Economists in other ministries or in lower administrative ranks have no more technocratic role perceptions than officials with other educational backgrounds.

The article thus makes two main contributions: First, it contributes to discussions about the political power and technocratic approach of economists and economist-dominated institutions. Going beyond existing research, our analysis allows us distinguish the separate and combined effects of economics education and organizational context on technocratic role perceptions of economic policy-makers. Our findings lend novel empirical support to the argument that the *combination* of education and organization is crucial for understanding the political power of economics (e.g., Chwieroth, 2010).

Second, the article contributes to the literature about technocracy and technocratic views, at a time when the technocratic challenge to representative democracy is receiving growing

attention (Caramani, 2017). While this work has focused on the technocratic attitudes of citizens (Bertsou & Caramani, 2019), we argue that the technocratic orientations of *bureaucrats* can be equally important to the functioning of democracies. If bureaucrats hold technocratic role perceptions, this can affect the political-administrative relationship and thereby the content of public policy. Our study picks up the thread from Putnam's (1977) classic work on technocratic orientations among civil servants. Yet, our novel findings about the conditional positive effect of economics education on bureaucrats' technocratic role perceptions contradict the results of Putnam and others.

2 | THEORETICAL FRAMEWORK

2.1 | The political power of economists

Economists and economic thinking have in recent decades had considerable influence on national and international public policies. Economists have obtained a pivotal role in contemporary societies and governments (Fourcade, 2006, 2009; Markoff & Montecinos, 1993), and have preserved that role even after the eruption of the global financial crisis, for which many have held them responsible (Mandelkern, 2019). Political economists and economic sociologists have thoroughly studied economists' political involvement, especially in comprehensive economic liberalization processes (e.g., Babb, 2001; Widmaier, 2016), in liberalization reforms in taxation (Christensen, 2017), macroeconomic policy (Ban, 2016), trade (Fairbrother, 2014) and social policy (Maron, 2019), and following the 2008 financial crisis (e.g., Ban, 2016; Helgadóttir, 2016; Mudge, 2015).

The influence of economists and economic thinking has been attributed to various features of economic knowledge and the economics discipline (Hirschman & Berman, 2014). Scholars have argued that economists possess knowledge that governments have come to see as crucial for ensuring prosperity and growth (Fourcade, 2006). They have also pointed to the symbolic value of economic knowledge: displaying economic expertise has become a way to show that policy-making is sound and responsible (Markoff & Montecinos, 1993). Moreover, studies link the influence of economic knowledge to the institutional position obtained by economists within national governments and international organizations (Babb, 2001; Chwieroth, 2010).

However, some recent studies suggest that the policy influence of economists is also related to their *particular approach to policy-making*. Berman (2017) highlights how economists brought specific methods and practices to the policymaking process, such as cost–benefit analysis, which favored a rationalized and scientific approach to policymaking. Mandelkern (2019) points to the importance of "economic ideas of government" that contributed to the depoliticization of economic decision-making. Christensen (2017) finds that bureaucrats with economic training held professionally defined norms about administrative behavior, which involved a strong commitment to speaking economic truth to political power and an activist approach to policy advice. Similarly, Fourcade et al. (2015) suggest that economists have been more willing than other professions to provide decision-makers with clear-cut advice. In a nutshell, these studies argue that economists hold views about policy-making that favor a greater role for experts and expertise—not least economic—at the expense of non-expert actors and considerations.

Yet, this argument is based on meso-level qualitative studies, conducted within specific organizations and policy areas, and has not been tested quantitatively on the micro-level views of economists. If economists indeed have a particular approach to policy-making, we would

expect to see systematic differences in individual-level views between economists and other professionals.

Our study investigates whether this is the case by examining the role perceptions of economists working within *government bureaucracy*. Certainly, economic experts may influence policy through several different positions, for example, as politicians, academics, journalists or think tank staff (Campbell & Pedersen, 2014; Markoff & Montecinos, 1993). Yet, many studies of the power of economists and economic ideas feature economists working in national and international bureaucracies in leading roles (e.g., Ban, 2016; Maron, 2019). There are good reasons for this: bureaucrats are deeply involved in policy formulation and have a key role in providing advice to ministers and other political principals (Christensen, 2017).

In this study, we examine whether bureaucrats with economics training put different emphasis than non-economists on expert knowledge relative to ideological and interest-based considerations in policy-making. We discuss this issue by drawing on the notion of "technocratic" role perceptions.

2.2 | Technocracy and technocratic role perceptions

We define technocratic role perceptions by following Putnam's (1977) classic study of the technocratic orientations of government elites and on the recent work of Bertsou and Caramani (2019) on citizens' technocratic attitudes. These studies agree that in its essence, technocracy is "the exercise of political power by technical elites (instead of democratically competing and elected ones), with competence, expertise, neutrality and efficiency as their source of legitimacy and with responsible trusteeship as principle of representation" (Bertsou & Caramani, 2019:3). Accordingly, "the technocrat believes that 'technics must replace politics' and defines his own role in apolitical terms" (Putnam, 1977:385; see also Aberbach, Derlien, Mayntz, & Rockman, 1990:4). In contrast to a right-wing rejection of any governmental intervention, technocracy rejects only interventions which are based on political considerations instead of scientific and professional ones (Putnam, 1977:387).

Bertsou and Caramani argue that technocratic attitudes combine three elements: (a) assigning high value to science and expertise, (b) a preference for elitist management, and (c) a dislike of politics.

The first element of the technocratic "mix" is the belief that science and expertise should have a central role in government and policymaking. The underlying assumption is that public policy is more about enhancing the general public good and social welfare and less about balancing between conflicting distributive demands or claims for justice (Putnam, 1977). Accordingly, policy-makers should focus on solving social problems as impartial experts who objectively assess empirical facts and evidence (Bertsou & Caramani, 2019).

The second element is an elitist disposition. Technocrats believe that professional elites are distinguished by their knowledge, expertise and intellectual capacity, which allow them to better judge what is in the public interest. These professional elites stand in contrast to "ordinary citizens, who are less equipped in terms of skills and time" (Bertsou & Caramani, 2019:4) and whose influence on policies therefore should be muted or limited. This corresponds to a "trustee" model of representation (Caramani, 2017, 56–57).

The third element is a dislike of "politics," or more accurately, a dislike of partisan politics (Caramani, 2017:60). This anti-political critique, Bertsou and Caramani argue, is "directed against political parties that aim to represent parts of society, sectional interests and particular

ideologies that hinder the advancement of society as a whole" (2019:4). For technocrats, politicians and partisan politics prefer short-term popularity over long-term responsibility, particular interests over the collective good, moralistic ideology over pragmatic rationality, and favoritism, parochialism and even corruption over impartiality and equality.

While Bertsou and Caramani discuss the technocratic *attitudes* of citizens, we focus on the technocratic *role perceptions* of bureaucrats. Whereas attitudes are the broader views of individuals, for example, about how society should be governed, role perceptions pertain to how one should behave in a specific job or function—in this case, as a civil servant. A central argument in institutionally oriented public administration scholarship is that civil servants face a set of competing loyalties—toward elected leaders, the public interest, their own department, clients, societal groups and professional communities—and therefore can identify with a range of different roles (Egeberg & Trondal, 2018; Hood & Lodge, 2006). These roles rest on different understandings of representation: Should civil servants act as "agents" of political leaders or rather as "trustees" serving the public good based on their independent judgment? Which interests and concerns should they prioritize? Which actors should they take behavioral cues from? For instance, some bureaucrats see their role primarily as following directions from their political superiors, whereas others identify strongly with the interests and concerns of clients or societal groups. While different role perceptions are not mutually exclusive and bureaucrats usually reconcile several conflicting roles in their daily work (Egeberg & Trondal, 2018:58), the relative emphasis they put on these different role perceptions may differ.

This study focuses on bureaucrats who identify with the role of "technocratic trustee," that is, "public servants as impartial experts or technocrats making decisions on behalf of society as a whole" (Hood & Lodge, 2006:39). Such bureaucrats see themselves as trustees who serve the public interest (rather than as agents of elected leaders), emphasize scientific and professional concerns (relative to partisan interests or ideology) and take behavioral cues from their epistemic community (rather than from politicians or interest groups).

2.3 | Economists and technocratic role perceptions

Educational background is one important factor that may affect bureaucrats' role perceptions (Wilson, 1989, 59–60; Christensen & Opstrup, 2018). In Putnam's classic study, which was based on interviews with senior civil servants in the UK, Germany and Italy, he found that a technocratic mentality was more common among natural scientists than social scientists (including economists) (Putnam, 1977, 404). However, later studies using survey data find limited support for Putnam's argument about differences across educational fields, yet base their conclusions only on bivariate analyses (e.g., Ribbhagen, 2011). In other words, the jury is still out regarding the effect of educational field on technocratic views.

In the following paragraphs, we develop our theoretical expectations regarding the role perceptions of economically trained bureaucrats, drawing on recent studies of economists' involvement in policymaking. Economics training, we suggest, instills in graduates certain attitudes that subsequently inform their role perceptions as civil servants. Specifically, we argue that particular features of economics give rise to a belief among economics graduates in science, rationality and efficiency and a self-confident attitude about the value of economic knowledge, which in turn favor technocratic role perceptions.

The first feature is the *scientific character* of economic knowledge. Over the last half-century, economics sought to become a "real science" through increased reliance on formal modeling

and sophisticated statistical techniques (Fourcade, 2009). Economics has moved much further and more uniformly than other social sciences in this direction (Fourcade et al., 2015). Accordingly, a large majority of economics graduates (strongly/somewhat) agree that economics is the most scientific of the social science (Colander 2007). We expect this to enhance the belief among economically trained officials that policy-making should be based on science and evidence, compared to officials with training in other social sciences, law and humanities.

The second feature is the central role of *rationality and efficiency* in economics. Economic theory assumes that human behavior is rational (economic man) and focuses on efficient allocation of resources. These theoretical premises can be expected to shape economics graduates' beliefs. This may spur economically trained bureaucrats to "see themselves as in the service of 'rationality' or 'efficiency' rather than in the service of the goals of their superiors" (Markoff & Montecinos, 1993: 51–52) and "to actively pursue their policy agenda vis-à-vis politicians, with little regard for the prerogatives of elected leaders" (Christensen, 2017: 22). In other words, economic training may give rise to a role perception with strong anti-political elements.

Third, economics harbors particular *theories about government*. Economic theories of government, such as public choice, political business cycles and rational expectations, see partisanship, mass politics and other biases of democratic decision-making as main reasons for economic dysfunction. These theories imply that policy-making can be rationalized by restraining the policy discretion of elected politicians and delegating it to non-elected experts, effectively to the economists themselves (Mandelkern, 2019). Such theories are essentially an economic theorization of technocratic attitudes, embodying both a belief in science and a distrust in politics. The adherence of economics graduates to these theories is likely to strengthen and rationalize a technocratic role perception among economists, compared to graduates of natural sciences and engineering.

The final feature is the *self-image* of economists. According to Fourcade et al. (2015), the economics profession has a sense of superiority in relation to the other social sciences, which derives from its strong scientific claims, strict hierarchy and the high demand for economists' services. This superior self-image dovetails with economics' "imperialistic" and expansionist tendencies, which result in the application of economic theory to an ever-growing range of social and policy domains like education, health and environment (e.g., Çalışkan & Callon, 2009; Fine & Milonakis, 2009). This superior attitude can translate into a sense of entitlement in dealings with non-professional decision-makers and the public—"economists know best"—which entails elitist and anti-political views.

We argue that the *combination* of these features is unique to economics and accentuates the potential technocratic tendencies of economists in comparison to other disciplines that may also have technocratic biases. Indeed, none of these features is unique to economists: the natural sciences are no less scientific; rationality and efficiency are central also in engineering; and legal studies also feature theories of government about limitations to majoritarian rule. However, in contrast to economics, none of these fields combine all these features: the natural sciences and engineering do not offer theories of depoliticized government and legal studies neither have a strong scientific character nor emphasize rationality and efficiency. Moreover, economics uniquely fuses causal (theories of government) and normative (scientism, rationality and efficiency) groundings for a technocratic inclination (see also Seabrooke & Wigan, 2016). Therefore, we expect economists to have stronger technocratic inclinations than professionals from all other fields, including natural scientists and engineers.

This combination of features also suggests that the expected technocratic tendencies of economists relate both to their expertise (which emphasizes rationality and promotes economic

theories of government) and to their interests as experts who would gain influence in a more technocratic political context. We assume that these two mechanisms have a mutually reinforcing effect on the technocratic role perceptions of economists.

Moreover, we assume that this combination of characteristics applies to mainstream economics and economics as a whole, regardless of specific political or policy approach. For example, the approach to economic management of Keynesian economics is no less rational and depoliticized than that of Neoclassical economics (Mandelkern, 2019). Likewise, the goals of market competition and openness in mainstream economics require and justify strong state regulatory action (e.g., Ban, 2016). Regulation protects and enhances market competition if driven by professional and scientific considerations and not by political interests and societal pressures.

Accordingly, our first hypothesis is:

Hypothesis 1. Civil servants with education in economics have more technocratic role perceptions than civil servants with other educational backgrounds.

However, we expect the effect of economics training on role perceptions to be conditioned by other factors. Education is an important socialization phase, during which future civil servants pick up particular professional knowledge, ideas and attitudes. Yet, these professional norms are subsequently altered through organizational socialization when economists start working for government. The organizational setting and work situation can strongly influence bureaucrats' role perceptions (Egeberg & Trondal, 2018; Christensen & Opstrup, 2018) and may thus either strengthen or weaken attachment to professional standards (Putnam, 1977: 390).

We therefore expect the effect of economics education on technocratic role perceptions to depend on features of the bureaucratic organizations where economists work. First, we expect the technocratic dispositions of economists to be strengthened in organizations built around the defense of economic rationality. This particularly concerns finance ministries, which usually represent the "general public interest" against the "particular" demands of other ministries, politicians and pressure groups. We hypothesize that:

Hypothesis 2. The positive effect of economics education on technocratic role perceptions is stronger among civil servants working in the Ministry of Finance than among civil servants working in other ministries.

Moreover, we expect the technocratic role perceptions of economists to be affected by the degree of interaction with other economists. In organizations with a larger share of economists, economists are likely to interact more with each other than with other professionals, which is likely to reinforce professional standards. In these organizations, economists are also likely to have more influence on organizational norms and ways of working, which strengthens organizational emphases on rationality and distrust in politics. In such organizational contexts, technocratic inclinations are more accepted. We therefore hypothesize that:

Hypothesis 3. The positive effect of economics education on technocratic role perceptions is stronger among civil servants working in ministries with a higher share of economists.

Finally, we expect the impact of education to depend on the tasks and responsibilities of officials. Specifically, we expect an economics background to have greater impact on

technocratic role perceptions in higher bureaucratic ranks. First, the basic technocratic orientation of economists may become more pronounced as they have greater discretion and possibility to impact policy-making. Being in a position of potential influence rather than in a more subordinate role may trigger underlying technocratic norms (cf. Caramani's, 2020:11] distinction between technocrats as "actors" and "agents"). Second, the self-confidence of economists is likely to be strengthened by occupying bureaucratic leadership positions, thereby reinforcing their eagerness to provide politicians with policy advice. This expectation is consistent with previous studies that found that senior officials hold technocratic views (Aberbach et al., 1990) and that reported on the bureaucratic activism of top economic bureaucrats in major reform processes (e.g., Christensen, 2017). Certainly, there are also reasons why technocratic role perceptions may decline among top bureaucrats, such as their close working relationship with political leaders making them more attuned to political concerns (Christensen & Opstrup, 2018). However, we formulate the following hypothesis:

Hypothesis 4. The positive effect of economics education on technocratic role perceptions is stronger among civil servants in high administrative grades than among civil servants in low administrative grades.

3 | RESEARCH DESIGN

3.1 | Empirical context and data

We examine the relationship between economics education and technocratic role perceptions by analyzing data from a large-scale survey of Norwegian civil servants. The Norwegian case allows us to test the link between education and technocratic role perceptions within a typical Northern European parliamentarian democracy with consensus-driven politics and a merit-based bureaucracy. Norway is a strong representative democracy, where ideological differences are small and politics is compromise-driven rather than adversarial (Arter, 2008). This includes an important legacy of neo-corporatist interest group involvement in decision-making. Norway also has a strongly merit-based civil service. Norwegian ministries are led by a minister, who is assisted by politically appointed under-secretaries of state and political advisors. The rest of the ministry staff, including the Secretary-General, are permanent administrators. These features mean that results from the Norwegian case may travel well to countries with similar systems like Denmark, Sweden, the Netherlands and Germany (Christensen & Opstrup, 2018; Kuhlmann & Wollmann, 2019) but may not be directly transferable to countries with adversarial and polarized politics (e.g., US) or more politicized bureaucracies (e.g., Spain or Italy).

Norwegian economics is in important ways representative of the global economics discipline. The literature on the economics profession highlights the high degree of uniformity within the transnational economics field, with shared theoretical assumptions and methods and common curricula (Fourcade, 2006). Certainly, Norwegian economics also has a nationally specific legacy, including a considerable historical emphasis on science and social engineering combined with close relations with the Labour Party (Slagstad, 2011). But since the 1980s, Norwegian economists in academia and the civil service have been strongly integrated in the global profession (Christensen, 2017; Lie & Venneslan, 2010). Norwegian economists have also had an important bureaucratic presence, accounting for nearly 20 percent of officials from 1976 onwards (Christensen, Egeberg, Lægreid, & Trondal, 2018: 56). On balance, we do not have

strong reasons to believe that the relationship between economics education and technocratic role perceptions will be stronger or weaker in Norway than elsewhere. This makes Norway a suitable case for testing our hypotheses. We return to the issue of generalization in the conclusion.

We analyze data from the Norwegian Ministerial Survey (*Departementsundersøkelsen*) (Christensen & Egeberg, 1996; Lægreid, Egeberg, Christensen, & Trondal, 2016; NSD, 2006). Our analysis focuses exclusively on civil servants in *ministries* and does not examine officials working in agencies. Whereas agency bureaucrats usually have more technical and specialized tasks and are relatively insulated from political pressures, ministerial civil servants are involved in policy preparation and advice for the minister and thus operate in a political environment (Christensen & Opstrup, 2018). Looking at ministries therefore allows us to examine technocratic role perceptions in a setting where the tension between political and technical concerns is most acute.

The Norwegian Ministerial Survey has been conducted every ten years since 1976. It is a population survey that includes all ministry employees with the grade of adviser (*rådgiver*) or higher and with tenure of at least one year. We use the three last waves of the survey (1996 [paper-based], and 2006 and 2016 [web-based]). The response rate for the surveys was 72 percent (1996), 67 percent (2006) and 60 percent (2016) (Christensen et al., 2018: 24), which is high for a survey of this kind. As Table 1 details, attrition was an issue in the 2016 wave, with about one third of respondents failing to answer the education question, likely due to the length of the questionnaire. However, missing values were not systematically tied to specific characteristics of the respondent (Bjurstrøm, 2017). In the analysis, we pool the data from the three waves, resulting in a combined number of observations of 5678—of which 4683 completed the education question. The total number of civil servants with economic education is 840, making up 18 percent of respondents who indicated their education.

3.2 | Variables

The dependent variable in this study is technocratic role perceptions. We conceptualize technocratic role perceptions as consisting of three dimensions: emphasis on science and expertise, elitism and anti-politics. The survey includes three items that capture these dimensions:

1. "How much weight do you attribute to each of the following concerns when executing your tasks? Scientific/professional concerns" (*ProfConcern*). This item taps into the emphasis on

TABLE 1 Overview of sample

	SurveyYear			
	1996	**2006**	**2016**	**Total**
(1) Total respondents	1482	1874	2322	5678
(2) Total Edu category	1460	1672	1551	4683
(3) = (2)/(1)	98.52%	89.22%	66.80%	82.48%
(4) EduEcon	275	274	291	840
(5) = (4)/(2)	18.84%	16.39%	18.76%	17.94%

science and expertise, since officials who give significant weight to knowledge derived from science and academic professions would score high on this item.[1]

2. "How much weight do you attribute to each of the following concerns when executing your tasks? Signals from political leadership (Cabinet, minister, under-secretary of state, political adviser)" [reversed] (*PolitConcern*). This item taps into the anti-politics dimension, that is, the dislike of partisanship, by measuring the extent to which bureaucrats are responsive to signals from political principals. Officials who do not give significant weight to inputs from actors who represent partisan political interests would score low on this question (and thus high on the reversed item).
3. "How much weight do you attribute to each of the following concerns when executing your tasks? Signals from user groups, clients, specially affected parties in society" [reversed] (*StakeholdConcern*). This item taps into the elitism dimension. Officials who believe that their knowledge is superior to that of the people affected by their decisions would tend to disregard signals from the latter and would score low on this question (and thus high on the reversed item).

For each item, responses were measured on a 5-point Likert-scale ranging from "Very important" to "Very unimportant." All items are recoded so that higher values indicate a more technocratic role perception.

According to our theoretical framework, a technocratic role perception should be seen as the *combination* of a belief in science and expertise, elitism and anti-politics. We therefore constructed two index variables based on the three items to capture the overall concept. These index variables are the dependent variables in our analysis. The first is a simple additive index (*TechIndxAverage*), which takes the average value of ProfConcern, PolitConcern and StakeholdConcern. Although it provides a balanced measure of the three dimensions, the additive index does not fully capture that all three dimensions are necessary elements of a technocratic role perception. We therefore constructed a second index (*TechIndxComp*) based on the following assumptions: (a) a belief in science and expertise is the sine qua non of a technocratic role perception, and (b) a belief in science and expertise indicates a technocratic role perceptions only when it is accompanied by elitist and/or anti-political views. This index variable takes the value 1 when a respondent has an above-average value on all three items. The variable takes the value 0.5 when a respondent has an above-average value on scientific/professional concerns and on one of the two other items. In all other cases, it takes the value 0. An above-average value corresponds to a value of 5 on ProfConcern, 2 or higher on PolitConcern and 3 or higher on StakeholdConcern.

The main independent variable in the study is economics education (EduEcon). In the survey, respondents were asked "What is your education?" and could choose between different fields (respondents had to choose one field).[2] Economics education is measured with a dummy variable that takes on the value 1 for all respondents who answered "economic, higher degree/master" and 0 for everyone else. (The education item in the survey does not allow us to compare civil servants with different levels of economics training. This would also make little sense in the Norwegian setting, given that the vast majority of ministerial civil servants have a master degree and few have a PhD.)

We also examine three moderating variables. The first is whether the official works in the Ministry of Finance, which is measured with a dummy variable (MinistryFin). The second moderating variable is the share of economists in the ministry where the official works. This is measured by aggregating the reported educational background of all officials working in a specific

ministry who answered the survey (EduEconPerMinistry). The third moderating variable is administrative grade (AdminGrade). This variable ranges from 1 (Adviser/Senior Adviser) to 4 (Director-General and higher) and is treated as a scale variable in the analysis. We also include a set of control variables: tenure in the ministries, gender and task (i.e., whether an official's main task is "Analysis and budget"). Controlling for task reduces the risk that variation in role perception is due to job characteristics. Age is not included as a control since it is strongly correlated with tenure (correlation 0.661). Descriptive statistics for all variables are presented in Table 2. We see that the values on both ProfConcern and PolitConcern are close to the extremes of the scale. The mean value for ProfConcern is 4.625 on a scale from 1 to 5, meaning that most respondents attribute great weight to professional/scientific concerns. The mean value on PolitConcern is 1.432 on the same scale (reversed), meaning that most respondents also attribute great weight to signals from political superiors. The responses on StakeholdConcern are more evenly distributed.

Correlations between all variables in the main analysis are provided in Table 3. The correlation table shows that our two indices are positively and significantly correlated. It also shows that the three items tapping into the different dimensions of technocratic role perceptions are *not* all positively correlated with each other. Thus, the three items appear to tap into distinct dimensions, which is consistent with our theoretical framework. Additionally, both indices of technocratic role perceptions are positively but weakly correlated with economics education, and are positively correlated with two of the moderating variables: working for the Ministry of Finance and share of economists in the ministry.

3.3 | Statistical analysis strategy

We use multivariate OLS regression to estimate the effect of economic education on technocratic role perceptions.[3] All models control for the survey wave, and robust standard errors are reported. To account for the conditional effects of education on the respondents' role

TABLE 2 Descriptive statistics

Variable	Obs	Mean	SD	Min	Max
TechIndxAverage	5113	2.77	0.454	1.333	5
TechIndxComp	5113	0.187	0.299	0	1
ProfConcern	5218	4.625	0.619	1	5
PolitConcern	5218	1.432	0.903	1	5
StakeHoldConcern	5177	2.251	0.936	1	5
EduEcon	4683	0.179	0.384	0	1
MinistryFin	5662	0.067	0.249	0	1
EduEconPerMinistry	5662	17.968	13.169	2.439	53.731
AdminGrade	5612	1.768	0.955	1	4
TenureMinistries	3997	12.207	8.858	0	45
GenderMale	4652	0.527	0.499	0	1
TaskAnalysisBudget	5402	0.374	0.484	0	1

TABLE 3 Correlations for all variables in the analysis

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) TechIndxAverage	1.000											
(2) TechIndxComp	0.722*	1.000										
(3) ProfConcern	0.259*	0.381*	1.000									
(4) PolitConcern	0.666*	0.392*	−0.090*	1.000								
(5) StakeHoldConcern	0.643*	0.421*	−0.198*	0.068*	1.000							
(6) EduEcon	0.072*	0.078*	−0.004	−0.035	0.140*	1.000						
(7) MinistryFin	0.158*	0.163*	0.071*	0.024	0.158*	0.191*	1.000					
(8) EduEconPerMinistry	0.113*	0.108*	0.073*	0.011	0.103*	0.347*	0.544*	1.000				
(9) AdminGrade	−0.084*	−0.036*	−0.009	−0.155*	0.029	0.091*	0.074*	0.047*	1.000			
(10) TenureMinistries	−0.026	−0.039	0.017	−0.030	−0.018	0.015	−0.005	0.025	0.253*	1.000		
(11) GenderMale	0.046*	0.044*	−0.098*	−0.030	0.161*	0.092*	0.037	0.047*	0.214*	0.059*	1.000	
(12) TaskAnalysisBudget	−0.012	−0.005	−0.031	−0.107*	0.107*	0.203*	0.053*	0.045*	−0.001	−0.035	0.062*	1.000

*Significance at the .01 level.

perceptions (hypotheses 2–4), we interact economics education with each moderating variable in a separate model. Positive interaction coefficients would support these hypotheses. We have no theoretical reason to assume that the technocratic role perceptions of officials were developed prior to their choice of academic field. Thus, it is highly unlikely that our models pick up simultaneous effects of the dependent variable.

4 | RESULTS

We first look at the mean values on the two measures of technocratic role perceptions for different educational categories. Figure 1 shows that civil servants with economics education are more technocratic than officials with most other educational backgrounds on both measures.[4] On the first index, economists rank second only to civil servants with "other education." On the second index economists rank first. The educational groups with the least technocratic role perceptions are political scientists and other social scientists.

Moving to the multivariate analysis, the OLS regression analysis for the two dependent variables are presented in Tables 4 and 5, respectively. In each table, we present the results of eight different models. There are two models per hypothesis, one with only survey year controls and one with the full battery of controls.

In models 1 and 2 we test hypothesis 1, which predicts that civil servants with economics education will have more technocratic role perceptions than other civil servants. We find that the relationship between economics training and technocratic role perceptions is positive and significant ($p < .01$) for both indices. This means that on average economists are more likely to have technocratic role perceptions than civil servants with other educational backgrounds. These results confirm hypothesis 1. We also checked whether these results are unique to economists by running models 1 and 2 with law education (EduLaw), natural sciences/engineering education (EduHardSci) and political science education (EduPoliSci) as the independent

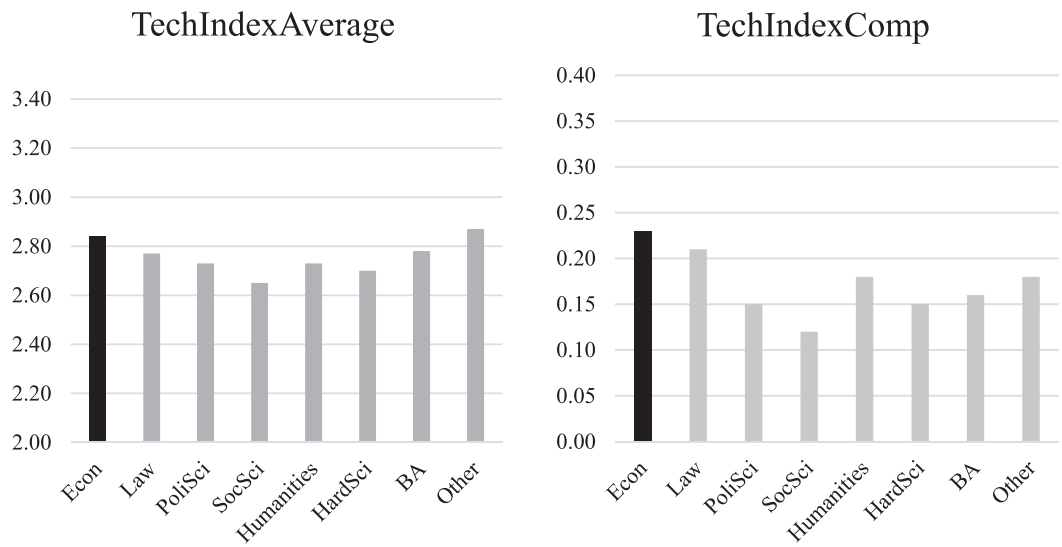


FIGURE 1 Average values on technocratic role perceptions for different educational groups

TABLE 4 OLS regression analysis of TechIndxAverage

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
EduEcon	0.084***	0.057***	0.022	0.034*	−0.031	−0.006	−0.040	−0.058
	(0.018)	(0.019)	(0.018)	(0.020)	(0.034)	(0.038)	(0.038)	(0.040)
MinistryFin		0.286***	0.198***	0.206***		0.247***		0.279***
		(0.030)	(0.035)	(0.038)		(0.034)		(0.030)
AdminGrade		−0.043***		−0.043***		−0.043***	−0.054***	−0.054***
		(0.008)		(0.008)		(0.008)	(0.008)	(0.009)
TaskAnalysisBudget		−0.038***		−0.041***		−0.039***		−0.035**
		(0.015)		(0.015)		(0.015)		(0.015)
TenureMinistries		−0.000		−0.000		−0.000		−0.001
		(0.001)		(0.001)		(0.001)		(0.001)
GenderMale		0.054***		0.053***		0.053***		0.054***
		(0.015)		(0.015)		(0.015)		(0.015)
EduEcon#MinFinance			0.203***	0.196***				
			(0.055)	(0.060)				

TABLE 4 (Continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
EduEconPerMinistry					0.003***	0.001		
					(0.001)	(0.001)		
EduEcon#EduEconPerMinistry					0.003**	0.002*		
					(0.001)	(0.001)		
EduEcon#AdminGrade							0.066***	0.058***
							(0.017)	(0.017)
2006.SurveyYear	−0.004	0.006	0.001	0.007	0.003	0.007	0.001	0.007
	(0.017)	(0.018)	(0.016)	(0.018)	(0.017)	(0.018)	(0.017)	(0.018)
2016.SurveyYear	0.032*	0.033*	0.040**	0.034*	0.033**	0.033*	0.020	0.034*
	(0.017)	(0.019)	(0.016)	(0.019)	(0.017)	(0.019)	(0.017)	(0.019)
_cons	2.744***	2.788***	2.730***	2.794***	2.695***	2.778***	2.843***	2.810***
	(0.012)	(0.022)	(0.013)	(0.022)	(0.016)	(0.025)	(0.020)	(0.023)
Obs.	4539	3652	4531	3652	4531	3652	4499	3652
R-squared	0.006	0.043	0.034	0.046	0.018	0.045	0.016	0.045

Note: Standard errors are in parenthesis.

*$p < .1$.

**$p < .05$.

***$p < .01$.

TABLE 5 OLS regression analysis of TechIndxComp

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
EduEcon	0.059***	0.035***	0.019	0.021	−0.021	−0.020	0.006	−0.013
	(0.012)	(0.013)	(0.012)	(0.014)	(0.022)	(0.024)	(0.027)	(0.028)
MinistryFin		0.186***	0.134***	0.136***		0.169***		0.183***
		(0.022)	(0.026)	(0.028)		(0.025)		(0.022)
AdminGrade		−0.006		−0.006		−0.006	−0.014***	−0.011*
		(0.005)		(0.005)		(0.005)	(0.005)	(0.006)
TaskAnalysisBudget		−0.018*		−0.020**		−0.019*		−0.016*
		(0.010)		(0.010)		(0.010)		(0.010)
TenureMinistries		−0.001**		−0.001**		−0.001**		−0.002**
		(0.001)		(0.001)		(0.001)		(0.001)
GenderMale		0.029***		0.028***		0.028***		0.029***
		(0.010)		(0.010)		(0.010)		(0.010)
EduEcon#MinFinance			0.130***	0.122***				
			(0.041)	(0.044)				

TABLE 5 (Continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
EduEconPerMinistry					0.002***	−0.000		
					(0.000)	(0.001)		
EduEcon#EduEconPerMinistry					0.002***	0.002**		
					(0.001)	(0.001)		
EduEcon#AdminGrade							0.027**	0.025**
							(0.012)	(0.013)
2006.SurveyYear	−0.021*	−0.018	−0.017	−0.017	−0.017	−0.018	−0.020*	−0.017
	(0.011)	(0.012)	(0.011)	(0.012)	(0.011)	(0.012)	(0.011)	(0.012)
2016.SurveyYear	0.020*	0.031**	0.025**	0.031**	0.021*	0.032**	0.018	0.031**
	(0.011)	(0.013)	(0.011)	(0.013)	(0.011)	(0.013)	(0.011)	(0.013)
_cons	0.176***	0.179***	0.166***	0.183***	0.148***	0.182***	0.202***	0.188***
	(0.008)	(0.015)	(0.008)	(0.015)	(0.011)	(0.017)	(0.013)	(0.015)
Obs.	4539	3652	4531	3652	4531	3652	4499	3652
R-squared	0.009	0.039	0.037	0.042	0.020	0.042	0.011	0.041

Note: Standard errors are in parenthesis.

*$p < .1$.

**$p < .05$.

***$p < .01$.

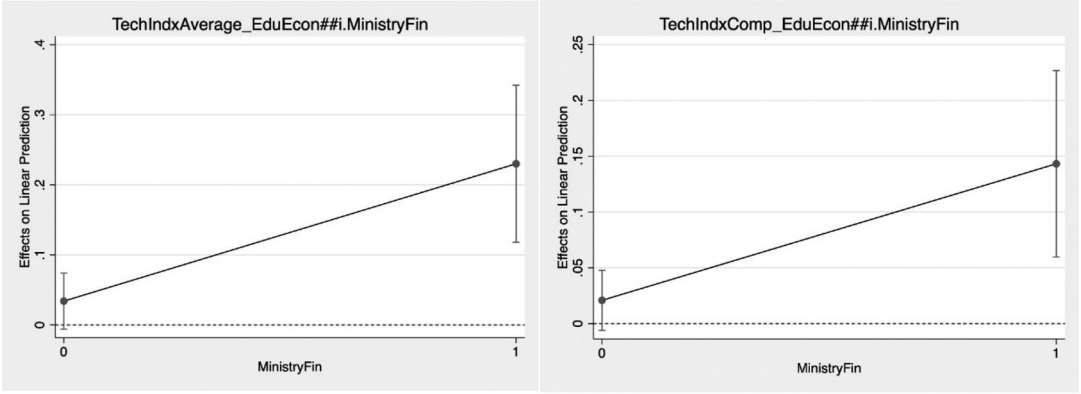
variables. In the models with control variables, all effects of these variables are either insignificant or significantly negative (see Tables A1-A3 in Supporting Information).

Some control variables are also systematically related to technocratic role perceptions. Most importantly, working for the Ministry of Finance is strongly positively related with both index variables ($p < .01$). Administrative grade is strongly negatively related with the first index ($p < .01$) but not with the second one. Having analysis and budget tasks is negatively related to technocratic role perceptions on both indices ($p < .01$; $p < .1$), and men are more likely to have a technocratic role perception than women ($p < .01$).

In models 3 and 4, we test hypothesis 2, which predicts that the relationship between economics education and technocratic role perceptions will be more positive for civil servants working in the Ministry of Finance than for other officials. We find a positive and significant interaction effect between economics education and working for the Ministry of Finance on both measures of technocratic role perceptions ($p < .01$). This confirms hypothesis 2.

The interactions between economics education and working in the Ministry of Finance are depicted in the marginal effect plots in Figure 2. The full line shows the marginal effect of economics education on technocratic role perceptions, depending on whether an official works in the finance ministry or not (the bars show the confidence intervals). For officials in the Ministry of Finance (MinistryFin = 1), the marginal effect is positive and significantly different from 0, which means that economists in the ministry have significantly more technocratic role perceptions than non-economists. By contrast, in other ministries (MinistryFin = 0), the marginal effect is positive but not significantly different from 0, meaning that economists are not significantly more technocratic than non-economists. In other words, the effect of economics training on technocratic role perceptions depends strongly on whether a civil servant works in the Ministry of Finance or not.

Following this finding, we conducted a robustness check by running models 1 and 2 again *without* respondents working in the Ministry of Finance (see Tables 6 and 7). This analysis shows that the effect of economic training on technocratic role perceptions for bureaucrats outside the Ministry of Finance is insignificant or significant only at the 10 percent level. In other words, the average positive effect of economics training on technocratic role perceptions found



Controls: AdminGrade, TaskAnalysisBudget, TenureMinistries, GenderMale

FIGURE 2 Marginal effect plots of the interaction effect of economics education and working for the Ministry of Finance on technocratic role perceptions

TABLE 6 OLS regression analysis of TechIndxAverage (Ministry of Finance respondents excluded)

	(1)	(2)	(3)	(4)	(5)	(6)
EduEcon	0.023	0.036*	0.009	0.026	−0.085**	−0.075*
	(0.018)	(0.020)	(0.035)	(0.039)	(0.038)	(0.042)
AdminGrade		−0.042***		−0.042***	−0.057***	−0.052***
		(0.009)		(0.008)	(0.008)	(0.009)
TaskAnalysisBudget		−0.052***		−0.052***		−0.049***
		(0.015)		(0.015)		(0.015)
TenureMinistries		−0.001		−0.001		−0.001
		(0.001)		(0.001)		(0.001)
GenderMale		0.051***		0.050***		0.050***
		(0.016)		(0.016)		(0.016)
EduEconPerMinistry			0.001*	0.002**		
			(0.001)	(0.001)		
EduEcon#EduEconPerMinistry			0.000	−0.000		
			(0.001)	(0.001)		
EduEcon#AdminGrade					0.060***	0.058***
					(0.017)	(0.019)
2006.SurveyYear	0.002	0.008	0.004	0.011	0.009	0.009
	(0.017)	(0.019)	(0.017)	(0.019)	(0.017)	(0.019)
2016.SurveyYear	0.037**	0.035*	0.036**	0.033*	0.023	0.036*
	(0.017)	(0.020)	(0.017)	(0.020)	(0.017)	(0.020)
_cons	2.731***	2.800***	2.711***	2.775***	2.835***	2.819***
	(0.013)	(0.022)	(0.017)	(0.026)	(0.020)	(0.024)
Obs.	4213	3385	4213	3385	4178	3385
R-squared	0.002	0.015	0.003	0.017	0.014	0.018

Note: Standard errors are in parenthesis.
*$p < .1$.
**$p < .05$.
***$p < .01$.

in Tables 4 and 5 is largely explained by Ministry of Finance economists being much more technocratic than non-economists in the ministry.

Returning to Tables 4 and 5, models 5 and 6 test hypothesis 3, which predicts that the relationship between economics education and technocratic role perceptions is more positive for civil servants working in ministries with a higher share of economists. We find a positive and significant interaction effect of economics training and the share of economists in a ministry on both measures of technocratic role perceptions ($p < .1$ and $p < .05$, respectively). However, when we exclude respondents from the Ministry of Finance, this interaction effect is no longer significant and even turns negative for the first index (see models 3 and 4 in Tables 6 and 7, and Figure 3). This means that the moderating effect of the share of economists in a ministry on the

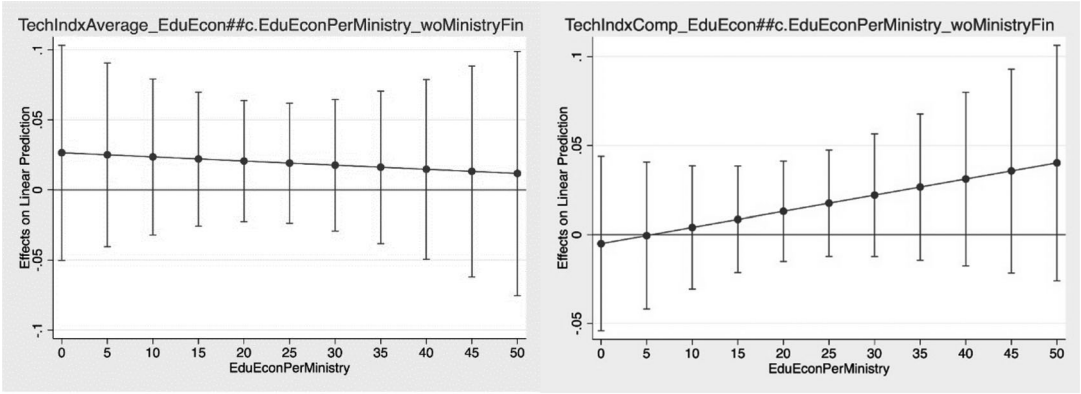
TABLE 7 OLS regression analysis of TechIndxComp (Ministry of Finance respondents excluded)

	(1)	(2)	(3)	(4)	(5)	(6)
EduEcon	0.059***	0.021	0.003	−0.005	−0.027	−0.033
	(0.012)	(0.014)	(0.022)	(0.025)	(0.027)	(0.029)
AdminGrade		−0.005		−0.005	−0.017***	−0.010*
		(0.006)		(0.006)	(0.005)	(0.006)
TaskAnalysisBudget		−0.021**		−0.021**		−0.019*
		(0.010)		(0.010)		(0.010)
TenureMinistries		−0.002***		−0.002***		−0.002***
		(0.001)		(0.001)		(0.001)
GenderMale		0.027***		0.026***		0.026***
		(0.010)		(0.010)		(0.010)
EduEconPerMinistry			0.000	0.000		
			(0.001)	(0.001)		
EduEcon#EduEconPerMinistry			0.000	0.001		
			(0.001)	(0.001)		
EduEcon#AdminGrade					0.024**	0.028**
					(0.012)	(0.013)
2006.SurveyYear	−0.021*	−0.019	−0.019*	−0.019	−0.018*	−0.019
	(0.011)	(0.012)	(0.011)	(0.012)	(0.011)	(0.012)
2016.SurveyYear	0.020*	0.028**	0.018	0.028**	0.015	0.029**
	(0.011)	(0.013)	(0.011)	(0.013)	(0.012)	(0.013)
_cons	0.176***	0.188***	0.163***	0.182***	0.200***	0.198***
	(0.008)	(0.015)	(0.011)	(0.018)	(0.013)	(0.016)
Obs.	4539	3385	4213	3385	4178	3385
R-squared	0.009	0.010	0.004	0.012	0.006	0.012

Note: Standard errors are in parenthesis.
*$p < .1$.
**$p < .05$.
***$p < .01$.

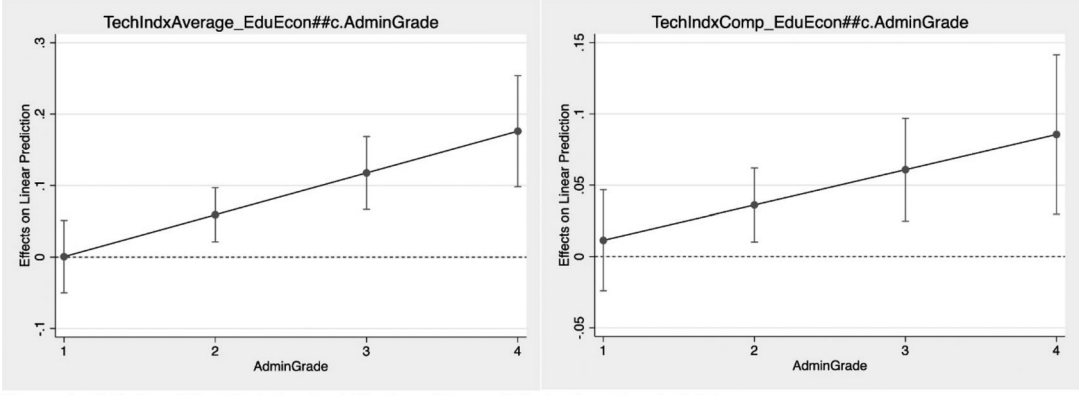
relationship between economics education and technocratic role perceptions derives from the moderating effect of working in the finance ministry. Therefore, hypothesis 3 is not supported.

Finally, models 7 and 8 (Tables 4 and 5) test hypothesis 4, which states that the relationship between economics education and technocratic role perceptions is more positive for civil servants in high administrative grades than for civil servants in low administrative grades. We find the expected positive and significant interaction effect of economics training and administrative grade on both measures of technocratic role perceptions ($p < .01$ and $p < .05$, respectively). These results hold up also when we exclude the Ministry of Finance. This confirms hypothesis 4. The interaction between economics education and administrative grade is illustrated in Figure 4 (full sample). The figure shows that among officials in middle and high administrative ranks (grades 2–4) economists are significantly more technocratic than non-economists. But



Controls: AdminGrade, TaskAnalysisBudget, TenureMinistries, GenderMale

FIGURE 3 Marginal effect plots of interaction between economics education and share of economists in a ministry (Ministry of Finance respondents excluded)



Controls: MinistryFin, TaskAnalysisBudget, TenureMinistries, GenderMale

FIGURE 4 Marginal effect plots of interaction between economics education and administrative grade

among lower-ranked officials (grade 1), economists are no more technocratic than their colleagues. In other words, the effect of economics education on technocratic role perceptions depends on the administrative grade of officials.

5 | DISCUSSION AND CONCLUSION

The empirical analysis partly confirms our theoretical expectations. On average, economically trained civil servants have more technocratic role perceptions than other civil servants. Yet, this relationship only holds when economists work in the Ministry of Finance or in higher administrative grades. In other ministries or in lower administrative grades, economists do not hold more technocratic role perceptions than their colleagues. The effect of economics education on

technocratic role perceptions thus depends on the organizational context and position in which economists work.

These findings contribute to the existing literature on the technocratic approach and power of economists and economists-dominated bodies like finance ministries, central banks and international financial institutions (Ban, 2016; Chwieroth, 2010; Maron, 2019). First, existing studies rarely allow us to distinguish between the effects of professional affiliation and institutional factors: Does the technocratic tendency of economist-dominated bodies result from their mandate and position in the governance system or from the professionally defined views of their staff? This is not a trivial issue, as it pertains to who should be blamed when these bodies overreach (i.e., the governance architecture or the economics profession) and how they might be reformed (e.g., by curtailing institutional powers or by recruiting a more professionally diverse staff).

By disentangling the effects of economics education and organizational context and examining the interaction between them, we find that economics training does not lead by itself to more technocratic role perceptions; it is only when economists work in the finance ministry that they are more technocratically oriented than others. This lends support to work that explicitly theorizes how the *combination* of education and organization is crucial for understanding the political power of economics (Ban & Patenaude, 2019; Christensen, 2017; Chwieroth, 2010; Mandelkern, 2019). It also suggests that efforts to limit the power of economic expert institutions need to target both institutional prerogatives and professional composition.

Second, our finding that the technocratic role perceptions of economists are conditioned by level of responsibility within the bureaucracy supports but also adds to qualitative studies on the topic. Qualitative research that explicitly or implicitly draws a link between economics training and a technocratic approach to policy-making tends to be based on studies of economists in senior positions (e.g., Babb, 2001). Yet, this scope condition is seldom made explicit, and echelon effects have received little attention in this work. This finding is important because senior civil servants are the ones in a position to impact the overall direction of policy formulation and implementation. The finding is also increasingly relevant given the growing number of economists in top bureaucratic positions, including in Norway, where 10 out of 16 Secretaries-General had an economics degree (2019 figures). The combination of technocratic inclinations among economists in higher administrative ranks and the growing share of economists at this level is also likely to strengthen technocratic organizational norms in the civil service in general.

The findings also speak to the literature on technocracy. While recent survey research has sought to understand the technocratic attitudes of citizens, the technocratic orientations of bureaucrats also warrant close attention since they may have a more direct impact on policy-making. Although the technocratic views of bureaucrats are not a new topic, empirical studies are few and have produced inconsistent results (Putnam, 1977; Ribbhagen, 2011). Our study yields the novel finding that technocratic role perceptions are more prevalent among economically trained bureaucrats but only under certain conditions. This supports Putnam's insight that bureaucrats' technocratic role perceptions depend on their educational background, yet contradicts his finding that natural scientists are more technocratic than other officials.

More broadly, the results have implications for discussions about the linkages between science/knowledge and government. University graduates who work in the civil service are an important link between the two. Our results indicate that the training and ideas that these graduates bring into public administration are important for their orientations regarding use of knowledge in public policy-making. University-trained bureaucrats do not only carry with them

substantive ideas about policy but also particular ideas about the policy process and the place of expertise within this process. However, these ideas are further shaped by the organizational context. The complex role of bureaucrats as transmitters or "brokers" between science and policy is a topic that warrants closer study (Christensen, 2018).

To what extent can these findings be generalized to other countries? We argue that similar results may be expected in countries that share Norway's consensus-driven politics and merit-based bureaucracy, for example, Denmark, Sweden, the Netherlands and Germany. The results may not transfer directly to more adversarial political systems and politicized bureaucracies. For instance, in a country with highly polarized politics like the US, ideological differences may have a greater impact on the role perceptions of bureaucrats. Yet, one could speculate that in some politicized bureaucracies economics training will have an even greater effect on technocratic role perceptions, if economists make up small pockets of specialized expertise in the civil service (see Quaglia, 2005 on Italy).

Furthermore, the fact that economics has become a global profession with extensive transfer of professional knowledge and standards across borders increases our confidence that the effect of economics training in Norway will be similar elsewhere (Fourcade, 2006). Nonetheless, there is still cross-national variation in the profile of economics education, the position of economics relative to other professions within the state, and the self-understanding of economists (Fourcade, 2009). Thus, we cannot exclude that our results partly reflect idiosyncratic features of Norwegian economics. Examining whether the findings hold up in other national contexts is therefore a necessary next step. Future research should also examine whether our findings can be extended to economists in other social positions, such as politicians, non-government experts (e.g., economists in advisory bodies or think tanks), academics and citizens.

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CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

DATA AVAILABILITY STATEMENT

The data from the Norwegian Ministerial Survey (*Departementsundersøkelsen*) is available upon request from the Norwegian Centre for Research Data (DOIs: https://doi.org/10.18712/NSD-NSD1925-1-V3; https://doi.org/10.18712/NSD-NSD1926-1-V3; https://doi.org/10.18712/NSD-NSD2670-2-V2). Additional materials for replicating the analysis (recoding, syntax, etc.) are available on Harvard Dataverse, DOI: https://doi.org/10.7910/DVN/W4XJ1Q.

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ENDNOTES

[1] There are of course situations in which scientific and professional concerns may point in different directions. Yet, in the context of technocratic role perceptions, the two can be seen as closely linked (Putnam, 1977).

[2] The categories were "legal, higher degree/master," "economic, higher degree/master," "political science, higher degree/master," "other social sciences, higher degree/master," "historical/philosophical, higher degree/master," "mathematical/natural sciences, technological, etc., higher degree/master," "bachelor," "other education."

[3] We also ran ordered probit regressions, which confirmed the results of the OLS regressions.

[4] *T*-tests show that the mean values for economists are significantly higher than for the other categories combined but not significantly higher than each of the other educational categories (95% confidence intervals).

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of this article.

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