Bureaucracy

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Abstract

This VoxDevLit reviews the emerging literature on bureaucracy and public sector organisations. We structure the review along key drivers of bureaucrat effectiveness: (i) improving performance through incentives; (ii) through better selection; and (iii) through a better matching of bureaucrats to tasks. We end by highlighting potential areas for future work.

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Contents

Summary 3
1 Introduction 4
2 Improving bureaucrat performance through incentives 5
2.1 Difficulties of measuring performance 6
2.2 Multi-tasking and implementation challenges 7
2.3 Non-monetary incentives 8
3 Improving bureaucrat performance through selection 9
4 The role of matching, training and task design 10
4.1 Task assignment and matching 10
4.2 Task design – formal vs. real authority 12
Conclusion 12
References 13

Summary

The rise of the institutions and state capacity paradigms in economics has brought bureaucratic effectiveness to the forefront of the debate on how to foster economic growth and development. While there is little disagreement that effective public administration is central to economic development, the debate around identifying the building blocks of an effective and competent bureaucracy continues. As a result there is a growing appetite for opening the black box of bureaucracies and understanding the formation, governing rules and continued transformation of effective bureaucracies.

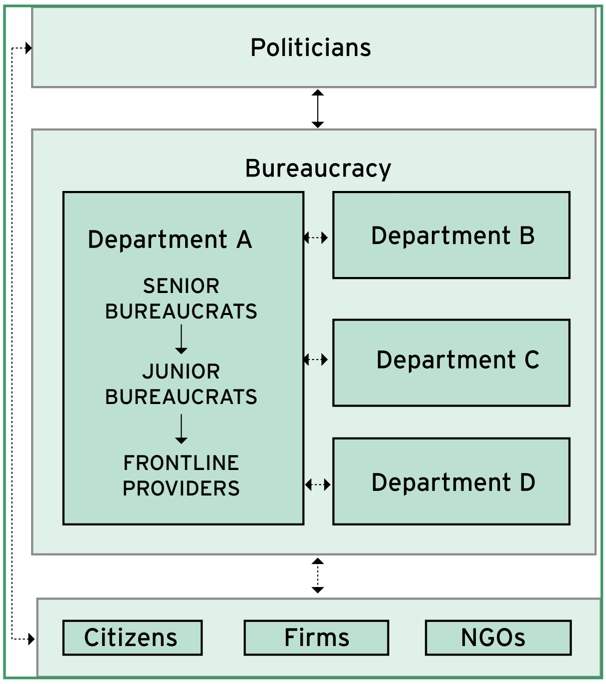
This VoxDevLit explores this issue, taking stock of how far we understand the building blocks needed to strengthen the administrative capacity of the state. This is important, since a well-functioning state can play a role in encouraging growth and poverty reduction while preserving basic liberties and expanding access to public goods and services. We will review the emerging literature on bureaucracy and development, organising the review along the key drivers of bureaucrat effectiveness: (i) improving performance through incentives; (ii) through better selection; and (iii) through a better matching of bureaucrats to tasks. We end by discussing where gaps in our knowledge remain.

1 Introduction

The rise of the institutions and state capacity paradigms in economics has brought bureaucratic effectiveness to the forefront of the debate on how to foster economic growth and development. While there is little disagreement that effective public administration is central to economic development, the debate around identifying the building blocks of an effective and competent bureaucracy continues. As a result there is a growing appetite for opening the black box of bureaucracies and understanding the formation, governing rules and continued transformation of effective bureaucracies.

This VoxDevLit[1] explores this issue, taking stock of how far we understand the building blocks needed to strengthen the administrative capacity of the state. This is important, since a well-functioning state can play a role in encouraging growth and poverty reduction while preserving basic liberties and expanding access to public goods and services. We will review the emerging literature on bureaucracy and development while discussing where gaps in our knowledge remain. Figure 1 provides a diagrammatic representation of a bureaucracy embedded in the wider society, encapsulating much of what we cover in the paper. As Figure 1 makes clear, how well bureaucrats dispense their duties, and the degree to which bureaucratic systems serve the public interest and promote development, will depend on interactions (i) between different levels of bureaucracy, (ii) between government departments, (iii) between citizens, politicians and bureaucrats and (iv) between bureaucrats and firms and NGOs. Our review will be structured along these interactions.

Figure 1



Note Figure 1 shows a stylised bureaucracy with multiple departments and levels of hierarchy. Solid lines show "traditional" principal-agent relations studied in personnel economics. Dotted lines show relations between systems (between different departments within the bureaucracy, or between politics, the bureaucracy, and civil society).

The term "bureaucrat" refers to paid officials responsible for discharging the core functions of public administration. This includes those directly employed as part of the state apparatus as well as officials

1 The initial version of this VoxDevLit is based on Besley, Burgess, Khan and Xu (2022), "Bureaucracy and Development", Annual Review of Economics, vol. 14, 2022, pp. 397-424. We thank Amol Singh Raswan for the excellent research assistance.

in quasi-independent public organisations such as central banks. Importantly, there is a clear distinction between such state employees selected by a superior and a politician picked in an election (Alesina and Tabellini 2007). The study of bureaucracy is often confined to senior-level bureaucrats but, given the expansion of the state to the delivery of core public services, it makes sense to include delivery professionals in healthcare, policing and education, often referred to as frontline providers who are also referred to as "street-level" bureaucrats. While the term bureaucracy is also frequently applied outside of the public sector to the administrative functions that support private business, our focus in this VoxDevLit is on support for the core functions of the state, i.e. ***those professionals in public employment who provide key inputs and decision making that can impact on the effective delivery of the functions of the state***.

The performance of bureaucracy matters when it allows the state to be more or less effective in taxing, regulating, enforcing laws, organising and providing infrastructure, and delivering public goods and services to citizens, firms and other non-governmental organisations (NGOs). Contemporary theories of the political economy of development put state effectiveness at centre stage and have come to view the design of political institutions as a key element. This was argued forcibly, for example in Acemoglu and Robinson (2012) who emphasise constraints on power and elections leading to states that are more inclusive. Besley and Persson (2011) argue that one of the main reasons why inclusive political institutions matter is by building an environment conducive to investing in state capacities which enable the state to enforce laws, regulate economic activity and provide public goods. While institutional design and political accountability take centre stage in the political economy literature, the role of the bureaucracy has received limited attention as an independent dimension of state capacity. This may be partly related to the difficulty of measuring the performance of bureaucrats – while politicians have to contest elections, bureaucrats are often generalists with lifelong tenures who perform many different roles across their careers thus making it difficult to measure their performance (see Bertrand et al. 2020).

The remainder of the review is concerned with how modern economics is attempting to unpack the relationship between bureaucracy and development. Our first step is to focus on principal-agent relationships within the bureaucracy, as depicted by Department A in Figure 1. Contemporary studies of state effectiveness by economists have taken a granular approach trying to break down the problem of bureaucracy into its constituent parts. Tools such as randomised control trials have tried to isolate the efficacy of specific components such as the use of incentives or different strategies for recruiting state personnel (see Dal Bó et al. 2013, Finan et al. 2017). Viewed through this lens, many of the problems of poor governance can be understood as a failure to either incentivise bureaucrats or to select those who are most likely to do a good job. We therefore explore research on bureaucracies in economics through the lens of principal-agent problems, where a principal (a higher tier bureaucrat or politician) is trying to control the behaviour of an agent (a bureaucrat). Given the extensive economics literature on this, it constitutes a "safe space" for economists to apply their ideas and provides a powerful framework for exploring three related core elements that affect bureaucratic performance: **incentives**, **selection**, and **measurement**. For now, we are interested in the bilateral principal-agent relationships between senior and junior bureaucrats, as illustrated for Department A in Figure 1. We will also explore additional complexities that come from considering the importance of matching, multi-tasking and investing in expertise by both the principal and agent.

2 Improving bureaucrat performance through incentives

A common observation for public sector organisations is that explicit incentives (e.g. bonus pay and promotion contests) are rarely used (Holmstrom and Tirole 1989, Dewatripont et al. 1999a, Dewatripont et al. 1999b). Firing costs are often high for public servants, and formal incentives are rarely a feature of bureaucratic remuneration.

The new public management literature of the 1980s and 90s led to a number of policy experiments on incentives and proved to be controversial (see Hood 1995 for a review). Important sources of controversy surrounded issues of multi-tasking, perverse incentives and high transaction costs due to the increased need of specifying and monitoring contracts (Williamson 1979). In recent years, however, there has been a renewed interest in whether there is greater scope for such rewards. These studies of incentives face a series of challenges that are particularly salient in the public sector context.

2.1 Difficulties of measuring performance

The implementation of incentive contracts requires a mapping between a bureaucrat's output and reward. In the public sector, the overarching challenge in the implementation of incentive contracts is the measurement of performance. Bureaucrats complete complex tasks that are particularly difficult to quantify. To measure output, work in private sector settings would focus on specific production processes, such as the installation of windshields (Lazear 2000), the picking of fruits (Bandiera et al. 2009), or line-level productivity in factories (Atkin et al. 2017). While such well-defined tasks may exist for front-line providers such as nurses or teachers (Ashraf et al. 2014, Deserranno et al. 2022, Muralidharan and Sundararaman 2011, Duflo et al. 2012), measuring output for more senior bureaucrats who implement policy and design rules is more difficult and sometimes performance is proxied by compliance with rules. More generally, a major challenge in low state capacity settings is limited ability to verify reported compliance (Andrews et al. 2017).

Furthermore, organisational goals in the public sector are most often multi-dimensional and non-verifiable. The first of these raises the issue of how different dimensions of performance are aggregated and/or traded-off against each other. The second implies that it is difficult, even ex post, to establish whether a particular goal was met. Another issue, which we refer to in greater detail below, is the attribution of individual contributions in team production, where the measure of performance cannot be disentangled across agents (Holmstrom 1982). Finally, with most transactions occurring inside the organisation, output is seldom evaluated in markets, thus making it hard to value (Downs 1965).

Measurement issues are further compounded by challenges of mission design. Bureaucracies by their nature are not geared towards narrow goals based on financial criteria. Thinking of bureaucracies as mission-driven organisations is most closely associated with Wilson (1989) and is also emphasised in Tirole (1994). The notion of a mission is a catch-all for a range of outcomes that a bureaucracy might pursue.[2]

The microeconomic literature has taken several approaches to performance measurement. The most common approach restricts the analysis to bureaucrats and tasks that can be more easily measured, like agricultural extension workers (Dal Bó et al. 2021), revenue collectors (Khan et al. 2016, Khan et al. 2019, Aman-Rana 2022), health care providers (Ashraf and Bandiera 2018, Deserranno et al. 2022, Khan 2020), teachers (Akhtari et al. 2022, Leaver et al. 2021, Brown and Andrabi 2021), procurement officers (Bandiera et al. 2021, Best et al. 2019) or judges (Dahis et al. 2023, Mehmood 2021). The clear advantage of this approach is the direct mapping from an individual to a comparable outcome. The disadvantage is that this approach works – with exceptions – mostly for lower tier civil servants who are more specialised. An exception perhaps is the use of attendance data, which provides an extreme measure of non-performance that can be applied to all workers (Chaudhury et al. 2006, Dhaliwal and Hanna 2017, Callen et al. 2023).

To make progress, a second approach has followed the CEO literature (Bertrand and Schoar 2003) by attempting to map higher-level individuals to an aggregate outcome. In the private sector setting, CEO traits may be related to company-specific outcomes such as profits or stock market returns. Examples in public organisations include provincial governors and GDP growth (Jia 2017), governors and colony-level revenue generation (Xu 2018), field office managers and office-level outcomes (Fenizia 2022), and district-

2 There has been an increased effort in trying to establish how bureaucracies are performing. As a result, there has been great interest in cross-country comparisons. One famous example is the World Bank's Doing Business project which provides evaluation and ranking across a range of state roles in supporting markets. For example, there is an attempt to measure how costly it is to set up a new business.

level development outcomes (Gulzar and Pasquale 2017). While this approach allows the study of the impact of more senior officers on aggregate outcomes, the exact mechanism through which they affect outcomes is hard to pin down. Furthermore, this approach is also limited to organisations with many comparable high level units that serve the same functions, such as field offices or districts.

Finally, another strand of the literature uses subjective performance measures. Such ratings are frequently found in internal evaluations across both private and public organisations. Rasul and Rogger (2018), for example, code administrative project reports to obtain project completion ratings and relate them to management practices. Limodio (2021) uses internal project performance ratings of the World Bank to study the allocation of World Bank staff. Bertrand et al. (2020) field a large-scale survey in which they collected subjective assessments of senior Indian civil servants among dimensions such as effectiveness, probity or pro-poor orientation. The advantage of this approach is that it can be applied to any task and output (including qualitative), providing a more holistic measure. The disadvantage is that perceptions could be biased, thus calling for the need of objective measures to validate or complement.

Overall, the measurement of bureaucrat performance remains a challenge. Approaches in the literature are highly context-specific, depending on the type of public officials studied, and the complexity of the job they execute.

2.2 Multi-tasking and implementation challenges

Even when output measures are available, the choice of how to map output to reward remains an open question. Assuming that output only has a single dimension is often unrealistic. Bureaucrats also frequently work across multiple tasks and can therefore choose which tasks to concentrate their effort on and hence which outputs are favoured (Holmstrom and Milgrom 1991). [3]

The main implication of multi-tasking, which has been discussed extensively, arises when some tasks are more easily measured than others and are incentivised. This is particularly problematic when the efforts put in different dimensions are substitutes. A classic example is when teachers who are incentivised according to test results focus excessively on this rather than on all round performance. One way around this is to get better measures of performance on alternative dimensions and the other is to have a less steep incentive scheme. In many settings, it is easier to implement a non-linear compensation scheme, such as a bonus paid for the highest performer (e.g. a monthly competition), or a threshold rule (e.g. bonus paid for each student with straight As). While such compensation schemes are abundant, such nonlinearities have distortionary effects. In the education setting, for example, conditioning teacher remuneration on test score outcomes could lead teachers to spend more time developing test-taking skills rather than general instruction (Glewwe et al. 2010). If teachers are compensated based on the number of students passing an exam, teachers may also divert effort away from the inframarginal students towards the marginal students close to the passing threshold (Neal and Schanzenbach 2010, Ahn and Vigdor 2014). Similarly, when incentive contracts reflect tournaments, the incentive effect may be large for those who are marginal but absent for those who are inframarginal. In Khan et al. (2019), for example, high performing revenue officers are rewarded with the transfer to their preferred work locality. The incentive effects, however, depend on how many other officers compete over the same locality. Officers competing over popular localities may thus be disincentivised if they perceive their chances to “win” to be low. Similarly, officers who prefer less popular districts may have little incentive to exert effort if they stand to receive their allocation anyway.

Relatedly, there is a choice of “who to incentivise.”' Public service provision requires coordination between multiple types of stakeholders and incentive design must reflect that. Deserranno et al. (2022) provide first empirical evidence that the allocation of incentives across the hierarchy of an organisation matters in the

3 Another dimension of a bureaucrat’s action could also be whether to ask for a bribe. Then whether a bribe is paid becomes a dimension of (non)-performance.

context of health-care provision in Sierra Leone. They find that sharing incentives equally between the lower and upper layer of the hierarchy raises output by 61% compared to unilateral allocations that are typical in public organisations. Another challenge arises from the very nature of public services that often involves inputs from both providers and citizens. If providers believe that all their effort and resources will be substituted away by citizens, incentives may not work. This has been documented as an important factor behind the limited effectiveness of input augmentation policies in education (Pop-Eleches and Urquiola 2013, Mbiti et al. 2019). Finally, there is a general concern that incentives are harder to implement for more senior civil servants. To prevent influence activities and political interference, classic bureaucracies have typically relied on easily measurable characteristics such as seniority (Prendergast 1999, de Janvry et al. 2020). A downside of such rigid rules however is that they may disincentivise performance (Bertrand et al. 2020).

The second consideration for designing incentive contracts is whether to contract on output or input. Output is often not only imperfectly observed but also subject to shocks beyond the control of the bureaucrat. However, in some contexts inputs are easier to observe and more closely reflect deliberate choices made. In the teacher example, performance pay could be either based on output – e.g. test scores (Muralidharan and Sundararaman 2011) – or based on inputs – e.g. teacher attendance (Duflo et al. 2012). The key difference lies in how much autonomy is granted to the bureaucrat. By contracting on inputs, the designer implicitly commits to a specific mapping between input and output. To the extent that the production function is more complex, however, the bureaucrat – by virtue of expertise – may possess better information about the optimal mix of inputs. Dal Bó et al. (2021) provide evidence for this in the context of agricultural extension workers in Paraguay. When provided with a monitoring technology to supervise subordinate workers, they find that middle-managers prioritise those subordinates who would be more responsive to the treatment. In general, incentivising on inputs may make more sense when outcome is difficult to measure or monitor, e.g. patient health, and when production inputs are clearly identifiable, feasibly measured, and non-substitutable, e.g. teacher attendance. Incentivising on outputs may make more sense when production inputs are difficult to identify, measure, or monitor, e.g. tax collector’s effort, and when outcome must meet a threshold, e.g. test scores.

Despite challenges in the design and implementation of incentives that can make these fail or even backfire, recent research does suggest that incentives “work” if well designed. There is now a large body of work that documents the role of incentives for front-line public service providers such as health care workers (Ashraf et al. 2014), teachers (Muralidharan and Sundararaman 2011, Leaver et al. 2021) and tax collectors (Khan et al. 2016). These studies focus on tasks for which performance is easier to measure. Multi-tasking concerns are often directly anticipated and built into the research design, mostly by attempting to measure both incentivised and non-incentivised outcomes. Khan et al. (2016), for example, designed an incentive scheme to reward tax collectors based on revenue collection. To test for the role of multi-tasking, they include two additional treatment arms: a “revenue plus” that ties the bonus not only on revenue generation but also taxpayer satisfaction, and a “flexible bonus” that is based on a more holistic subjective evaluation.

2.3 Non-monetary incentives

Despite the renewed interest in incentives in public organisations, the use of explicit, monetary incentives remains the exception rather than the norm. Instead, bureaucracies have relied on alternative, indirect and non-monetary means to incentivise performance, such as leveraging heterogeneity in the desirability of (same-seniority) postings either along vertical traits (e.g. prestige) (Iyer and Mani 2012, Jia 2017) or horizontal traits (e.g. personal preference) (Khan et al. 2019). The implementation of such incentive schemes, however, still hinges critically on the accurate measurement of performance. It is perhaps for that very reason that indirect means of inducing performance, for example through rotations or high turnover, have often been excessively used for political purposes (Akhtari et al. 2022) and satirised as a “bureaucratic merry-go-around” (De Zwart 1994). For more senior positions an important determinant of effort and choices made are accountability systems that punish non-compliance with rules through criminal charges or career consequences, serving as a de facto negative non-monetary incentive. There is an incipient literature on how such systems can lead to waste in government (Bosio et al. 2022, Bandiera 2021). Considering how pervasive these systems are in developing countries, more work is needed on that front.

Finally, it is often suggested that those who work in bureaucracies are mission-motivated and thus care about the output even if their monetary compensation is not explicitly tied to it (Ashraf and Bandiera 2018, Besley and Ghatak 2018, Bénabou and Tirole 2006). Mission may thus be a potentially cost-effective way to incentivise performance when bureaucracies have limited budgets. Khan (2020) provides experimental evidence from healthcare workers in Pakistan that greater mission emphasis helps increase worker performance and improve health outcomes. Importantly, the greater focus on mission helps increase performance even on dimensions that were not explicitly incentivised, suggesting that mission-motivation may also help alleviate multitasking problems. In the contemporary US setting, Spenkuch et al. (*forthcoming*) show that ideological alignment of procurement officers with the serving President increases performance and self-reported morale.

3 Improving bureaucrat performance through selection

Selection provides a way of influencing the type of bureaucrats in office. Given the high firing costs and limited formal incentives used in bureaucracies, as we emphasised in Section 2, affecting selection is a potentially powerful means of changing the performance of a bureaucracy. A first important dimension on which bureaucrats ought to be selected is on their talent and competence. In this regard, a major challenge throughout history has been the fight against nepotism in bureaucratic recruitment (Xu 2018, Riano 2022). The second dimension is selection on motivation to pursue the organisational mission. As emphasised by Max Weber (1922) in his conception of bureaucracy, while talent and competence impact the output associated with effort, bureaucrats' public-service motivation affects their marginal cost of effort.

Given the importance of selection in driving bureaucratic performance, it is not surprising that a large literature on bureaucrat selection has emerged. It has two main strands. The first is concerned with how to attract the "right" type of individuals to the public sector. A key challenge concerns a potential trade-off between mission and financial motivation. In contrast to private firms where the main goal is profit-maximisation, public organisations often pursue a wider range of objectives, involving elements of welfare maximisation or attributes of the public goods provided. Individuals who select into the public sector thus may not only care about remuneration, but also the mission of the organisation (see, for example, Besley and Ghatak 2005, Le Grand 2003, and Tirole 1994). Existing work is mostly experimental and focused on front-line providers, varying advertised job traits shown to prospective candidates at time of application such as salaries (Dal Bó et al. 2013, Deserranno 2019), or the salience of the prosocial vs. career nature of the task (Ashraf and Bandiera 2018).

A second strand of work centres around the balance between rules vs. discretion in the selection process. Traditionally, bureaucrats were selected to serve "at the pleasure" of the ruler or politician, giving the principal full discretion in the selection process. At the opposite end of the spectrum is rule-based selection, where the principal ties its hands using a selection rule such as a competitively-based entry exam. Today, most bureaucracies are, at least on paper, characterised by rule-based selection for the vast majority of bureaucrats, with only the apex positions filled by political appointees.

In deciding between rules and discretion, the theoretical trade-off lies between balancing the value of (soft) private information against bias: politicians can use discretion to appoint the best matches, but can also use discretion to favour those in their network, sometimes for private gain. While a rule-based selection limits such favouritism, much depends on the details of the rule and whether it effectively screens on traits that can predict performance. Even though they are used extensively, there is little evidence on the effects of competitive exams on the selection of civil servants. The research that exists suggests that variation in entry exam scores are predictive of later performance (Dahis et al. 2023, Bertrand et al. 2020), but relies on variation in test scores conditional on being selected, thus leaving the extensive margin unexplored. Moreira and Pérez (2022a) study how the Pendleton Act shaped the composition of US customs officers. While they find evidence that competitive exams led to more hiring of individuals with higher previous occupational status, they do not find any impact on performance. In a complementary study, Aneja and Xu (2023) focus on the implementation of the Pendleton Act across US Post Offices. They find a positive effect on postal performance but no significant changes in the observable traits of newly recruited employees, concluding that selection is unlikely to be a major channel through which the reform worked. Rather, they argue that the Pendleton Act limited the ability of politicians to interfere with the careers of bureaucrats, thus enabling stabler careers. Finally, Otero and Munoz (2022) find that the introduction of a competitive selection process for public hospital CEOs in Chile reduced hospital mortality and lead to a more efficient use of medical resources. This effect was driven by the higher managerial qualifications of the new CEOs (who, before the reform, mainly tended to be doctors).

When it comes to discretion, existing work has documented negative effects on the hire quality. In Brazil, appointments of politically aligned public servants are less qualified (Colonnelli et al. 2020); in the administration of the British Empire, governors connected to the minister are allocated to more favourable positions while performing worse under a system of discretionary appointments (Xu 2018). Increasing impartiality in the hiring process of the Brazilian public sector has been shown to increase the likelihood of selecting high-ability women, thus reducing the gender gap in hiring (Mocanu 2023). Increasing impartiality in the promotion system prompts an increase in the effort and promotion probability of high-ability health workers in Sierra Leone (Deserranno et al. 2022). These results resonate with the findings in private sector settings, where managers who hire against test recommendations select applicants with lower subsequent retention (Hoffman et al. 2018). Two papers document positive selection effects under a discretionary system of appointment. Weaver (2021) collects rich data on side payments for public sector positions in healthcare. In the developing country setting under study, he finds that greater willingness to pay is correlated with quality, resulting in positive selection. Another paper that shows positive selection effects of patronage is Voth and Xu (2022), who show that Admirals leverage their social connections to promote better officers when facing competitive pressure during times of war. This resonates with work in labour economics that has documented the informational value of referrals in hiring (Burks et al. 2015). There is, however, limited work that connects both strands of the literature by studying how selection rules affect the quality of the final hire by endogenously changing the applicant pool.

Overall, the study of the trade-off between rule-based selection and discretion remains a vibrant research area. Given the difficulty of randomising hiring practices, however, most evidence has been observational.

4 The role of matching, training and task design

What we have discussed so far are classical ways of addressing principal-agent issues as applied to bureaucracy. We now discuss two additional issues that go beyond the standard approach and, even though the work is recent, are now attracting increased attention from researchers.

4.1 Task assignment and matching

In our discussion of selection we discussed the potential for matching mission-preferences or competence to positions. There is a growing literature that exploits the mobility of bureaucrats across different units to disentangle the attributes of bureaucrats and the location that they work in (Best et al. 2019, Fenizia 2022, Dahis et al. 2023, Prem and Muñoz 2021). This applies ideas that have gained traction in corporate finance where transitions of executives are used to estimate “CEO fixed effects” - average effects that are contributed to each individual CEO (as pioneered by Bertrand and Schoar 2003). In contrast to the private sector literature that typically focuses on transitions across firms, work in the context of bureaucracies has largely exploited transitions within an internal public sector labour market. A potential advantage of doing this in the public sector compared to the standard "CEO fixed effects" approach is the much larger number of transfers that can be exploited for empirical purposes.

The increased availability of administrative data has meant that work in this area can adapt the so-called "AKM-framework", allowing the researcher to decompose measured output (or productivity) into differences driven by variation in bureaucrat quality and the quality of organisations in which they work (Abowd et al. 1999, Card et al. 2013 for the estimation). The results typically find large differences attributable to individuals, suggesting that bureaucrats do have a substantial bearing on outcomes (Best et al. 2019).

While the decomposition literature is interested in estimating individual and organisation effects, a new literature has emerged to estimate match effects. Doing so is motivated by the low exit rates among bureaucrats; once selected, bureaucrats tend to remain within an organisation. This can create skill mismatches when technology and the external conditions change. How to make best use of the existing talent pool thus becomes an important question. In the context of a public organisation, whether bureaucrats should be generalists or specialists is an issue of particular interest. A traditional argument in public administration is that bureaucrats ought to work across a wide range of tasks and ministries, serving the state and not particular organisations (e.g. Northcote et al. 1854). The disadvantage, of course, is that frequent rotation across different tasks will limit the amount of specialisation that can be attained. While there is work on skill-mismatch in the private sector, research on public organisations remains limited (Ferguson and Hasan 2013).

How far skill mismatch is malleable through training is also an interesting issue on which evidence is also scarce. As the state has grown in its scope and scale, there is a need for increasingly specialised competence in managing how the state operates and, even routine tasks, can be completed with higher levels of efficiency when training is good. How far the state provides such training on the job or relies on it being provided elsewhere is a key issue. Moreover, training is not just about skills as it can instill norms and values that are required to deliver tasks in the right way to maximise benefits to citizens. Some kinds of bureaucracies involve significant amounts of specific human capital that can only be acquired over a career. And the system can be structured to maximise such skills being acquired by permitting a high degree of specialisation. Others operate a rotation system where the expectation is that individuals move around within the system and operate as "generalists".

Bergeron et al. (2022) provide unique evidence for the gains of optimal assignment from a randomised control trial among tax collectors in the DRC. Exploiting random assignment of tax collectors into teams and to neighborhoods, they find evidence for positive assortative matching: under the optimal assignment case with high (low) ability collectors paired together, and high (low) ability teams paired to high (low) payment propensity households, they estimate an increase in tax compliance by 3%.

A related discussion on matching bureaucrats to workplaces revolves on whether there is a tension between embeddedness and autonomy. On the one hand, greater embeddedness of bureaucrats into society and business can increase bias and promote clientelism. On the other hand, lack of embeddedness can reduce the amount of local information that bureaucrats can leverage – a key feature highlighted in the earlier work on the rise of East Asia. The question of how organisational design can strike the right balance in this trade-off is an old issue that resonates with "home avoidance" rules implemented across many bureaucracies (see, for example, Wade 1985, 1992). The existing empirical work finds evidence for both channels. On the negative side, Vannutelli (2021) exploits the staggered introduction of random auditor assignment across Italian municipalities to show that municipalities paired with a random (as opposed to a mayor nominated) auditor experience greater revenue performance. Similarly, Xu et al. (2023) exploit random variation in home assignment owing to an allocation rule. They find that Indian civil servants allocated to their home states are perceived to be less able to withstand illegitimate political pressure, with the negative effects stronger in high corruption states. Bandiera et al. (2021) show in the context of Uganda how delivery agents favour their own social ties in the implementation of policies. Finally, a set of papers also document the positive effects of embeddedness. Bhavnani and Lee (2018) show that local embeddedness is associated with greater provision of schools. In the context of colonial administration of India during the 1918 pandemic, Xu (2023) shows that local administrators are more responsive in the provision of disaster relief, reducing overall mortality. Balan et al. (2022) document in the context of the DRC – a low tax capacity setting – how local chiefs allow the state to tap into local information in order to increase tax collection through better targeting.

4.2 Task design – formal vs. real authority

The standard assumption in principal-agent models is that the agent is the informed party and that the principal is trying to control his/her behaviour through incentives. But this is inadequate in studying many real-world situations. Principals also have to take decisions that have an impact on the success of an operation beyond the design of incentives - principal effort also matters for performance. When the agent is putting in effort, the agent will need to know what decisions are being made by the principal which may also be unobservable, creating a problem of double moral hazard.

The task assignment can be thought of as representing a division of expertise between the principal and agent based on their knowledge and information about the task in hand rather than a strictly hierarchical "chain of command". In an important contribution, Aghion and Tirole (1997) allow these information structures to be endogenous, based on decisions to "invest" in knowledge and expertise. Who is better informed about the task is then endogenous. This determines "real" authority in the relationship if one person has invested much more than another. These ideas are useful in shaping empirical studies, particularly those which examine training and accumulated expertise in determining the effectiveness of a bureaucracy. Thus, Rasul and Rogger (2018) collect rich data on project completion and management practices in the Nigerian Civil Service. They find a robust positive association between project completion and autonomy. This is also a feature of Bandiera et al. (2021) who study public procurement in Pakistan by experimentally varying the amount of autonomy the procurement officer has vis-a-vis a monitor (principal). The study suggests that the effects of greater autonomy are highly heterogeneous depending on the identity and alignment of the monitor. While important work has begun in this area, it is ripe for further investigation in future.

Conclusion

In this VoxDevLit, we reviewed the literature on bureaucracy and development. The mainstream economics literature remains rooted in the study of principal-agent problems, with many studies looking at the importance of output measurement, incentives, selection and matching in affecting how bureaucrats behave. A key insight is that standard recommendations stressing the importance of incentives and selection are mostly confirmed in public sector settings. While bureaucrats, by virtue of their public tasks, are deemed more pro-social and mission-driven than private sector workers, there is limited evidence that financial incentives crowd-out or lead to the recruitment of less able workers. A growing body of work has also demonstrated that public servants are responsive to incentives in the public sector, both using explicit incentives and career concerns.

As the literature on the personnel economics of the state has matured, the study of bureaucratic reforms has raised questions about how to leverage knowledge to increase external validity and scaling-up. As Wilson (1887) noted a century and a half ago: "civil service reform must ... expand into efforts to improve, not the personnel only, but also the organisation and methods of our government offices." Studying the interdependence between different kinds of bureaucratic activity requires giving greater weight to the study of organisational issues such as how multiple departments and agencies interact; and how bureaucracy relates to and is influenced by the political system, as well as the private and non-profit sectors.

We finish by flagging three areas where additional work is needed. The first is in the area of measurement since it is difficult to measure the output of bureaucrats and bureaucracies. Recent work has made some progress, but there is probably a great deal more that can be done – for example using remote sensing data and economic censuses to proxy changes in GDP and other outcome variables of interest. There is also an increasing use of administrative data capturing the universe of bureaucrats in a region or country often linked to monitoring of their actions. So whether one is measuring economic growth or service delivery, moving to micro-data that captures concrete effects of the universe of bureaucrat actions is a challenge that new measurement technologies are bringing into the realm of possibility.

Second, gathering this type of economy-wide micro-data will open possibilities to evaluate system-wide reforms of what bureaucrats do and how they affect these outcomes, which is often what governments are interested in. And it may be feasible to trace out the effects of different kinds of civil service reforms on outcomes that citizens care about.

Finally, there are questions around whether bureaucrats can innovate and adapt to future challenges. The COVID-19 pandemic has uncovered large heterogeneity in the capacity of bureaucracies to respond. If we think about future challenges, such as climate change, it is clear that one needs to identify what characteristics of bureaucracies are needed to respond to these key challenges developing countries will face which may be different to the challenges faced in the last century. There seems to be a whole set of issues that surface around how innovative bureaucracies are in using up-to-date knowledge to face current and future challenges.

References

Abowd, J M, F Kramarz, and D N Margolis (1999), "High Wage Workers and High Wage Firms", *Econometrica*, 67(2): 251–333.

Acemoglu, D, and J A Robinson (2012), *Why Nations Fail: The Origins of Power, Prosperity, and Poverty, Currency*, New York

Aghion, P, and J Tirole (1997), "Formal and Real Authority in Organizations", *Journal of Political Economy*, 105(1): 1–29.

Ahn, T, and J Vigdor (2014), "When Incentives Matter Too Much: Explaining Significant Responses to Irrelevant Information", National Bureau of Economic Research Working Paper No. 20321.

Akhtari, M, D Moreira, and L Trucco (2022), "Political Turnover, Bureaucratic Turnover, and the Quality of Public Services", *American Economic Review*, 112(2): 442-493.

Alesina, A, and G Tabellini (2007), "Bureaucrats or Politicians? Part I: A Single Policy Task", *American Economic Review*, 97(1): 169–179.

Aman-Rana, S (2022), "Meritocracy in a Bureaucracy", Working Paper.

Aneja, A, and G Xu (2023), "Strengthening State Capacity: Civil Service Reform and Public Sector Performance during the Gilded Age", Working Paper.

Andrews, M, L Pritchett, and M J V Woolcock (2017), *Building State Capability: Evidence, Analysis, Action*, Oxford University Press.

Ashraf, N, and O Bandiera (2018), "Social Incentives in Organizations", *Annual Review of Economics*, 10: 439–463.

Ashraf, N, O Bandiera, and B K Jack (2014), "No margin, no mission? A field experiment on incentives for public service delivery", *Journal of Public Economics*, 120: 1–17.

Atkin, D, A Chaudhry, S Chaudry, A K Khandelwal, and E Verhoogen (2017), "Organizational Barriers to Technology Adoption: Evidence from Soccer-Ball Producers in Pakistan", *Quarterly Journal of Economics*, 132(3): 1101–1164.

Balan, P, A Bergeron, G Tourek, and J Weigel (2022), "Local Elites as State Capacity: How City Chiefs Use Local Information to Increase Tax Compliance in the D.R. Congo", *American Economic Review*, 112(3): 762-797.

Bandiera, O, I Barankay, and I Rasul (2009), "Social Connections and Incentives in the Workplace: Evidence From Personnel Data", *Econometrica*, 77(4): 1047–1094.

Bandiera, O, M C Best, A Q Khan, and A Prat (2021), "The Allocation of Authority in Organizations: A Field Experiment with Bureaucrats", *Quarterly Journal of Economics*, 136(4): 2195–2242.

Bandiera, O, R Burgess, E Deserranno, and I Rasul (2021), "Development Policy through the Lens of Social Structure", Working Paper.

Bénabou, R, and J Tirole (2006), "Incentives and Prosocial Behavior", *American Economic Review*, 96(5): 1652–1678.

Bergeron, A, P Bessone, J K Kabeya, G Tourek, and J Weigel (2022), "Optimal Assignment of Bureaucrats: Evidence from Randomly Assigned Tax Collectors in the DRC", Working Paper.

Bertrand, M, R Burgess, A Chawla, and G Xu (2020), "The Glittering Prizes: Career Incentives and Bureaucrat Performance", *Review of Economic Studies*, 87(2): 626–655.

Bertrand, M, and A Schoar (2003), "Managing with Style: The Effect of Managers on Firm Policies", *Quarterly Journal of Economics*, 118(4): 1169–1208.

Besley, T, and M Ghatak (2005), "Competition and Incentives with Motivated Agents", *American Economic Review*, 95(3): 616–636.

Besley, T, and M Ghatak (2018), "Prosocial Motivation and Incentives", *Annual Review of Economics*, 10:411–438.

Besley, T, and T Persson (2011), *Pillars of Prosperity: The Political Economics of Development Clusters*, Princeton University Press.

Best, M C, J Hjort, and D Szakonyi (2019), "Individuals and Organizations as Sources of State Effectiveness", Working Paper.

Besley, T, R Burgess, A Khan and G Xu (2022), "Bureaucracy and Development", *Annual Review of Economics*, 14: 397-424.

Bhavnani, R R, and A Lee (2018), "Local Embeddedness and Bureaucratic Performance: Evidence from India", *Journal of Politics*, 80(1): 71–87.

Bosio, E, S Djankov, E Glaeser, A Shleifer (2022), "Public Procurement in Law and Practice", *American Economic Review*, 112(4): 1091-1117.

Brown, C, and T Andrabi (2021), "Inducing Positive Sorting through Performance Pay: Experimental Evidence from Pakistani Schools", Working Paper.

Burks, S V, B Cowgill, M Hoffman, and M Housman (2015), "The Value of Hiring through Employee Referrals", *Quarterly Journal of Economics*, 130(2): 805–839.

Callen, M, S Gulzar, A Hasanain, M Y Khan, and A Rezaee (2023), "The Political Economy of Public Sector Absence", *Journal of Public Economics*, 218: 104787.

Card, D, J Heining, and P Kline (2013), "Workplace Heterogeneity and the Rise of West German Wage Inequality", Quarterly Journal of Economics, 128(3): 967–1015.

Chaudhury, N, J Hammer, M Kremer, K Muralidharan, and F H Rogers (2006), "Missing in action: teacher and health worker absence in developing countries." *Journal of Economic Perspectives*, 20(1): 91-116.

Colonnelli, E, M Prem, and E Teso (2020), "Patronage and Selection in Public Sector Organizations", *American Economic Review*, 110(10): 3071–3099.

Dahis, R, L Schiavon, and T Scot (2023), "Selecting Top Bureaucrats: Admission Exams and Performance in Brazil", *Review of Economics and Statistics*: 1-47.

Dal Bó, E, F Finan, N Y Li, and L Schechter (2021), "Information Technology and Government Decentralization: Experimental Evidence From Paraguay", *Econometrica*, 89(2): 677–701.

Dal Bó, E, F Finan, and M A Rossi (2013), "Strengthening State Capabilities: The Role of Financial Incentives in the Call to Public Service", *Quarterly Journal of Economics*, 128(3): 1169–1218.

de Janvry, A, G He, E Sadoulet, S Wang, and Q Zhang (2020), "Performance Evaluation, Influence Activities, and Bureaucratic Work Behavior: Evidence from China", CEGA Working Paper No. 138.

De Zwart, F (1994), The Bureaucratic Merry-Go-Round: Manipulating the Transfer of Indian Civil Servants, Leiden University Press.

Deserranno, E (2019), "Financial incentives as signals: experimental evidence from the recruitment of village promoters in Uganda", *American Economic Journal: Applied Economics*, 11(1): 277–317.

Deserranno, E, G Leon, and P Kastrau (2022), "Promotions and Productivity: The Role of Meritocracy and Pay Progression in the Public Sector", Working Paper.

Deserranno, E, S Caria, P Kastrau, and G Leon (2022), "The Allocation of Incentives in Multi-Layered Organizations", Working Paper.

Dewatripont, M, I Jewitt, and J Tirole (1999a), "The economics of career concerns, part I: Comparing information structures," *Review of Economic Studies*, 66(1): 183–198.

Dewatripont, M, I Jewitt, and J Tirole (1999b), "The economics of career concerns, part II: Application to missions and accountability of government agencies," *Review of Economic Studies*, 66(1): 199–217.

Dhaliwal, I, and R Hanna (2017), "The devil is in the details: The successes and limitations of bureaucratic reform in India." *Journal of Development Economics*, 124: 1-21.

Downs, A (1965), “A theory of bureaucracy,” *American Economic Review*, 55(1/2): 439–446.

Duflo, E, R Hanna, and S P Ryan (2012), “Incentives work: Getting teachers to come to school,” *American Economic Review*, 102(4): 1241–78.

Fenizia, A (2022), “Managers and Productivity in the Public Sector”, *Econometrica*, 90(3): 1063-1084.

Ferguson, J-P, and S Hasan (2013), “Specialization and career dynamics: Evidence from the Indian administrative service,” *Administrative Science Quarterly*, 58(2): 233–256.

Finan, F, B A Olken, and R Pande (2017), “The personnel economics of the developing state,” In *Handbook of Economic Field Experiments*, ed. by A V Banerjee and E Duflo, 2: 467–514, North-Holland.

Glewwe, P, N Ilias, and M Kremer (2010), “Teacher incentives,” *American Economic Journal: Applied Economics*, 2(3): 205–27.

Gulzar, S, and B J Pasquale (2017), “Politicians, bureaucrats, and development: Evidence from India,” *American Political Science Review*, 111(1): 162–183.

Hoffman, M, L B Kahn, and D Li (2018), “Discretion in hiring,” *Quarterly Journal of Economics*, 133(2): 765–800.

Holmstrom, B (1982), “Moral hazard in teams,” *Bell Journal of Economics*: 324–340.

Holmstrom, B, and P Milgrom (1991), “Multitask principal-agent analyses: Incentive contracts, asset ownership, and job design,” *Journal of Law, Economics, & Organization*, 7: 24.

Holmstrom, B, and J Tirole (1989), “The theory of the firm,” *Handbook of Industrial Organization*, 1: 61–133.

Hood, C (1995), “The “new public management” in the 1980s: Variations on a theme”, *Accounting, Organizations and Society*, 20(2-3): 93–109.

Iyer, L, and A Mani (2012), “Traveling Agents: Political Change and Bureaucratic Turnover in India”, *Review of Economics and Statistics*, 94(3): 723–739.

Jia, R (2017), “Pollution for Promotion”, Working Paper.

Khan, A Q, A I Khwaja, and B A Olken (2019), “Making Moves Matter: Experimental Evidence on Incentivizing Bureaucrats through Performance-Based Postings”, *American Economic Review*, 109(1): 237–70.

Khan, A Q, A I Khwaja, and B A Olken (2016), “Tax Farming Redux: Experimental Evidence on Performance Pay for Tax Collectors”, *Quarterly Journal of Economics*, 131(1): 219–271.

Khan, M Y (2020), “Mission Motivation and Public Sector Performance: Experimental Evidence from Pakistan”, Working Paper.

Lazear, E P (2000), “Performance Pay and Productivity”, *American Economic Review*, 90(5): 1346–1361.

Le Grand, J (2003), *Motivation, Agency, and Public Policy: Of Knights and Knaves, Pawns and Queens*, Oxford University Press.

Leaver, C, O Ozier, P Serneels, and A Zeitlin (2021), “Recruitment, effort, and retention effects of performance contracts for civil servants: Experimental evidence from Rwandan primary schools”, *American Economic*

Review, 111(7): 2213-2246.

Limodio, N (2021), "Bureaucrat Allocation in the Public Sector: Evidence from the World Bank", *Economic Journal*, 131(639): 3012-3040.

Mbiti, I, K Muralidharan, M Romero, Y Schipper, C Manda and R Rajani (2019), "Inputs, Incentives, and Complementarities in Education: Experimental Evidence from Tanzania", *Quarterly Journal of Economics*, 134(3): 1627-1673.

Mehmood, S (2021), "The Impact of Presidential Appointment of Judges: Montesquieu or the Federalists?", AMSE Working Paper No. 2118.

Mocanu, T (2023), "Designing Gender Equity: Evidence from Hiring Practices and Committees", mimeo.

Moreira, D, and S Pérez (2022a), "Civil Service Reform and Organizational Practices: Evidence from the Pendleton Act", Working Paper.

Moreira, D, and S Pérez (2022b), "Who Benefits from Meritocracy?", Working Paper.

Muralidharan, K, and V Sundararaman (2011), "Teacher Performance Pay: Experimental Evidence from India", *Journal of Political Economy*, 119(1): 39–77.

Neal, D, and D W Schanzenbach (2010), "Left behind by design: Proficiency counts and test-based accountability", *Review of Economics and Statistics*, 92(2): 263–283.

Northcote, S H, C E Trevelyan, and B Jowett (1854), *Report on the Organisation of the Permanent Civil Service*, Eyre / Spottiswoode.

Otero, C, and P Muñoz (2022), "Managers and Public Hospital Performance", mimeo.

Pop-Eleches, C and M Urquiola (2013), "Going to a Better School: Effects and Behavioral Responses", *American Economic Review*, 103(4): 1289-1324.

Prem, M, and P Muñoz (2021), "Managers' Productivity and Recruitment in the Public Sector: The Case of School Principals", Working Paper.

Prendergast, C (1999), "The Provision of Incentives in Firms", *Journal of Economic Literature*, 37(1): 7–63.

Rasul, I, and D Rogger (2018), "Management of Bureaucrats and Public Service Delivery: Evidence from the Nigerian Civil Service", *Economic Journal*, 128(608): 413–446.

Riano, J (2022), "Bureaucratic Nepotism", Working Paper.

Spenkuch, J L, E Teso, and G Xu (2023), "Ideology and Performance in Public Organizations", *Econometrica*, forthcoming.

Tirole, J (1994), "The Internal Organization of Government", *Oxford Economic Papers*, 49(1): 1-29.

Vannutelli, S (2021), "From Lap Dogs to Watchdogs: Random Auditor Assignment and Municipal Fiscal Performance in Italy", Working Paper.

Voth, J, and G Xu (2022), "Discretion and Destruction: Promotions, Performance, and Patronage in the Royal Navy", Working Paper.

Wade, R (1992), “How to make ‘Street Level’ Bureaucracies Work Better: India and Korea”, *IDS Bulletin*, 23(4): 51–54.

Wade, R (1985), “The market for public office: Why the Indian state is not better at development”, *World Development,* 13(4): 467–497.

Weaver, J (2021), “Jobs for Sale: Corruption and Misallocation in Hiring”, *American Economic Review*, 111(10): 3093-3122.

Weber, M (1922), *Economy and Society*, 4th edition, Tübingen.

Williamson, O E (1979), “Transaction-Cost Economics: The Governance of Contractual Relations”, *Journal of Law Economics*, 22(2): 233–261.

Wilson, J Q (1989), *Bureaucracy: What Government Agencies Do and Why they Do it*, New York: Basic Books.

Wilson, W (1887), “The Study of Administration”, Political Science Quartlerly, 2(2): 197-222.

Xu, G (2023), “Bureaucratic Representation and State Responsiveness: the 1918 Pandemic in India”, *Review of Economics and Statistics*, 105(2): 482-491.

Xu, G (2018), “The Costs of Patronage: Evidence from the British Empire”, *American Economic Review*, 108(11): 3170–98.

Xu, G, M Bertrand, and R Burgess (2023), “Organization of the State: Home Assignment and Bureaucrat Performance”, *Journal of Law, Economics, and Organization*, 39(2): 371-419.