

The Power of Government Analytics to Improve Public Administration

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Abstract

Government analytics involves collecting, analyzing, and utilizing data to enhance the administration of government, enabling a realistic view of how government functions in practice. By providing an evidence-based platform for action, it highlights areas in need of improvement, and those that can be emulated. Whether repurposing existing government records or developing new measures, analytics can shed light on stark contrasts in how government operates, from prices paid for the same goods to the qualities of individual managers as perceived by their staff. Addressing these disparities can result in significant savings and improved working conditions for staff. In today's economy and society, where digitization and data analysis dominate other fields, government analytics has the potential to revolutionize the quality of government administration. This chapter showcases what the insights outlined in the Government Analytics Handbook mean for officials, managers, agency heads, and government leaders. While the public service presents unique challenges and requires a distinctive framework for measurement and analysis, the potential benefits are immense. With the aid of analytics, government organizations can improve their efficiency, effectiveness, and accountability, delivering better services to the public. Investments in measurement, data, and analytics have already revolutionized productivity in other sectors. It is time to turn the lens on public administration and revolutionize government.

*The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the views of the World Bank and its affiliated organizations, or those of the Executive Directors of the World Bank or the governments they represent.

Introduction

In 2016, Kim Wells, a senior member of the United States Federal Government's 'Federal Employee Viewpoint Survey' (FEVS) team – perhaps the world's most famous survey of public servants – had an appointment with an imposing ex-marine who had entered the public service as a manager. The marine still had a soldier's burly physicality about him as he entered the conference room with Kim, and you could see that he brought his military management style with him to his duties. For so many members of the US military, the idea of excellence is fundamental to how they see themselves and their work. His identity was rooted in the idea that he was an outstanding manager. And if you'd asked him, he would have woven a narrative of success against all odds in the work that he and his team were doing.

And yet he was failing. Failing to create a work environment for his staff in which they felt engaged, mentored and safe. Kim had surveyed all of his team, giving them a chance to feed back and for that feedback to be compared with the experiences of other officials working under different managers. And the truth was that this burly ex-marine was failing his team, himself and his country. He broke down in tears in front of Kim. His view of himself had been confronted by the survey data that gave his staff a voice they could not have had otherwise. He knew he needed to change and improve how he managed his team, and the survey data told him exactly how to go about doing it.

At roughly the same time, but over four thousand miles further to the south, Brazil's Federal Government was heading for financial catastrophe. The existing pay and pensions regime that compensated federal employees meant wage costs were about to skyrocket. Seeing the impending danger through the dense wording of public contracting law was daunting. Mirian, a member of the Ministry of Economy, suspected something was wrong, but couldn't put a finger on what lay ahead. So Mirian had a team calculate what the future of payroll and pensions looked like for every individual in the federal government under the existing regime. The danger suddenly seemed very real. As wages skyrocketed, funding for other inputs to government services would become unaffordable. Services would have to be stopped. Fortunately, Mirian had also asked the team to model other feasible scenarios. These cases gave the government the means to negotiate with politicians and other stakeholders and pass legislation to change compensation rules in time to avert catastrophe.

Four thousand miles east, the Government of Nigeria had received debt relief from the Paris Club group of creditors in 2005 worth USD18billion. Many Nigerians wanted to know what would happen to those funds, including Amina Mohammed, a Northern Nigerian who was almost invariably clothed in traditional dress and had a background in both engineering and civil society advocacy. The president asked Amina to join his team, and over the next few years she built one of the world's most innovative public sector tracking systems to follow the financial gains of debt relief through government.

From her office in the Presidency, Amina tracked every Naira of those funds, joining budget, program and audit data systems and sending teams to visit every project site. It was truly frontier analytics, showing where and how badly the government was failing. Some organizations fulfilled their commitments completely. Others did not. In 2006, the Ministry of Water Resources received USD475 million to develop water infrastructure across the country. In return, it produced nothing. The ministry's officials seemed busy and budgetary releases were made. But when Amina's teams visited the sites that had been allocated funds all across the country they could not find a single project that had been completed. Amina took this evidence to the president and won the political and bureaucratic space she needed to create new ways of spending government resources, such as a grants scheme to state governments that only paid out if water infrastructure was actually produced.

This book is about enabling individuals like Kim, Mirian, and Amina to change their governments for the better. It draws on a moment in history when the world is capitalizing on innovations in measurement, data collection and analysis at an unprecedented scale. Never before has the world been able to build a richer picture of the realities of the public sector. The question for each and every public sector official, manager and leader is what they are going to do with this revolution.

How governments collect, analyze and use micro-data to improve the administration of government - or undertake what we call 'Government Analytics' - will determine how effective they are in this new world. Government analytics can help solve big issues in public administration - government-wide administrative challenges, as in the case of future fiscal liabilities from Brazil's payroll. But as importantly it can also help government organizations improve in small ways - addressing specific management challenges in specific teams in specific government organizations, as with the example of the former U.S. marine. When small improvements happen across thousands of teams inside government - as enabled by regular government-wide employee surveys, for

instance – even small changes can transform government.

Government analytics is not restricted to governments with more advanced IT platforms and employee records, like Brazil and the U.S. Instead, it has been of use to governments around the world and at all stages of administrative development, as illustrated by Amina’s efforts in Nigeria. We have had the good fortune of being collaborators and witnesses to many such improvements. Government analytics has, for instance, led to more rigorous merit recruitment procedures in Kosovo’s government, better mentoring in Ethiopia’s government, improved public service training in Ghana and Nepal, improved quality of management in Croatia’s government, improved employee onboarding in Chile, and better procurement practices in Romania and Uruguay. The list goes on. Many more examples are contained across the 30 chapters of this handbook.

Despite numerous examples of government analytics being carried out at an individual level, there is a lack of systematic practice in governments as a whole. This means that governments are missing out on the potential insights available to them for improving their public administrations at scale. This means money is being left on the table. Public revenues that could be spent more efficiently, with greater impact on the welfare of citizens, is simply not being spent as well as it could. It’s time to pick up those funds and use them for a better society.

How does this book help? Primarily, we hope that by showcasing how impactful and low-cost analytics can be, more government’s will undertake analytics of their own administrations, and in a more systematic way. To make meaningful progress, we need to change the way we approach government, and this shift should reflect a broader change in what we expect to know about state institutions. Analytics have come to dominate discussions of many other spheres of life, and they should play a more significant role in how we discuss strengthening the state.

Beyond any single government, there is a lack of systematic evidence on how to do analytics in a rigorous manner, and there are few carefully constructed global comparisons available. As a result, different governments tend to follow diverging practices even when undertaking similar analytics, limiting their ability to use objective benchmarks from other settings. For instance, (Khurshid and Schuster, 2023) demonstrate in this book that different governments ask different questions in their employee surveys to measure the same concepts.

This Handbook is designed to take a step towards improving the way we understand and change government. It presents frontier evidence and practitioner insights on how to leverage data to strengthen public administration. Across 30 chapters, it transforms the ability of governments

to take a data-informed approach to diagnose and improve how public organizations work. It covers a range of micro data sources. These include administrative data, such as payroll, procurement, case, text and Human Resource Management Information System (HRMIS) data; public servant survey data; and data coming from external assessments, such as citizen and household surveys, or anthropological diagnostics of public administration. Methodologically, it covers both traditional qualitative and quantitative methods, as well as newer approaches, such as machine learning diagnostics of unstructured text records from governments. To our knowledge, this is the first and most comprehensive volume of this kind.

Why We Have To Improve Public Administration

In their magisterial review of the formation of the state, Acemoglu and Robinson (2019) note that, “bureaucracy is vital to state capacity”. Whether a country’s laws and policies will indeed be implemented is determined by the quality of its public administration. Extensive research confirms that the quality of government administration affects institutional quality, safety guarantees, education opportunities, healthcare provision, and ultimately, the welfare of society and the economy ((Wilson, 1989; Finan et al., 2015; Pepinsky et al., 2017; Dahlström and Lapuente, 2022; Besley et al., 2022)).

Significant opportunities exist for improving these outcomes through better administration. For example, in Russia, the quality of bureaucrats and their organizations accounted for two-thirds of the variation in the cost of public procurement contracts (Best et al., 2017). By reducing the prices paid by the worst-performing 25% of procurement agents to no more than that paid by the other 75% of agents, the Russian government could save approximately USD10 billion each year. This is a sum equivalent to about 15% of its total healthcare spending. Similarly, improving the quality of management in government organizations in Nigeria by a standardized unit could raise the likelihood that a physical infrastructure projects are completed by 32% (Rasul and Rogger, 2018). In Italy, reassigning managers to match the best managers with the largest offices would boost productivity in social security claim processing by at least 7% (Fenizia, 2022). In Pakistan, offering the best-performing tax collectors their top choice of job posting would increase tax revenue by 40% (Khan et al., 2019). Conversely, poor management of the administration leads to worse outcomes. In Brazil, politicized turnover of public personnel, including at schools, significantly

lowers student learning (Akhtari et al., 2022). Corruption in education funds is associated with a 65% increase in dropout rates from schools (Ferraz et al., 2012).

In short, the quality of public administration plays a critical role in determining the success or failure of public policies. The essence of the research above is that when competent public officials are in charge, government performance can improve significantly and rapidly. Conversely, when public administration is weak or inefficient, programs and policies are far more likely to fail. The size of the findings of recent evaluations of public administration reforms indicate that there is perhaps no more effective means of improving public policy than by strengthening the quality of public administration.

The sheer scale of most country's public administrations make its quality important. The cost of wages for public sector employees is approximately 10% of gross domestic product across the world, not even counting public sector pensions (World Bank, 2020; Hasnain et al., 2019). That is a significant portion of the economy to ensure is managed effectively. Similarly, the assets the public administration manages directly are large. Across the world, public procurement of goods and services accounts for roughly 8 percent of GDP (Schapper et al., 2009). Echoing the sentiment in the study of Russian procurement above, ensuring the government are paying appropriate prices for these purchases would mean a lot more money to spend on healthcare.

A direct consequences of its size is its influence over the rest of the economy. Globally, the public sector makes up 38% of formal employment (World Bank, 2020). As such a large employer, it plays an influential role in the wider labor market, particularly for tertiary educated workers (Somani, 2021). The same can be said for the prices it pays for the goods it procures, and the stimulus it induces when it builds infrastructure or regulates business. So even if your interest is purely in improving the private sector, government analytics matters.

Yet with so much at stake, and such large margins of improvement to exploit, governments everywhere are not exploiting modern analytics (World Bank, 2016). The World Bank's 'GovTech Maturity Index' measures the extent to which government is digitizing its work and exploiting the opportunities of that digitization (GTM, 2022). As we noted above, analytics is not necessarily dependant on such digitization, but it is illustrative of wider commitments to analytics. Though governments worldwide have invested heavily in digitizing their administrative work - dedicated digital government institutions have been established in 154 economies - few have systematized the use of the resulting data to strengthen the way they work.

What Government Analytics Can Do To Help

Much recent private sector strengthening has some form of analytics at its heart. Stock market indices are ever more dominated by tech firms who generate value in part or full by creating, managing and providing access to diagnostic data. More broadly, the collection and analysis of micro data at previously unforeseen scale has been one of the main drivers of economic and social advancement – from machine learning algorithms automating customer interactions to utility firms using service data to identify critical weaknesses in physical infrastructure.

Data has enabled firms to improve their own internal operations and management. Brynjolfsson et al. (2021), for instance, assess 30,000 American manufacturer establishments and find that productivity is significantly higher among plants that use predictive analytics. Gallup (2023) uses its database of employee surveys to identify the impact of an organization tracking and nurturing employee engagement. Units with engaged workers have 23% higher profit compared to business units with disengaged employees. They also see significantly lower absenteeism, turnover, accidents, and higher customer loyalty. In other words, management without measurement – the historically dominant approach to management in firms – puts firms at a competitive disadvantage and undermines productivity. Consequently, an increasing share of private sector companies base their entire business model on analytics (Carrera and Dunleavy, 2013).

In fact, such data collection efforts have uncovered how within-firm differences, say across units, account for the largest share in productivity differences between countries (Cusolito and Maloney, 2018). Micro-data on firm productivity showcases that variation in firm performance is often due to intra-firm differences, such as leadership and management practice (Bloom and Reenen, 2010; Bloom et al., 2010). The difference between productive and unproductive firms, it seems, is that unproductive firms allow unproductive units to persist. Or conversely, do not learn the lessons they could from the most successful units. By using administrative records or primary data to identify those units, the most productive firms allow the firm as a whole to flourish. The private sector, particularly in competitive markets, is disinclined to leave money on the table.

This data revolution in society and firms *could* be paralleled by one inside government, for at least two reasons. First, government already does analytics on the rest of society. Governments have made significant investments to strengthen the quality of data systems towards better policy making and service delivery, by heavily expanding their measurement of their citizens, firms, and

the environment they govern. In most countries of the world, household and firm surveys have become central policy tools to avoid “making policy decisions in a data vacuum” (Deaton, 2003; Kraay, 2006). The centrality of such data for state efficacy was striking during the Covid-19 pandemic, for instance when governments were differentially able to create effective track and trace systems to isolate COVID cases (Fetzer, 2021). In other words, governments have been developing the capabilities for doing analytics on everyone else, but not turned that lens on their own administrations.

Governments also sit on substantial volumes of data that could be used for government analytics. Public administration is frequently symbolized by stacks of government files packed with information on individuals, projects or tasks. Increasing ICT use for government operations implies that these records are ever more digitized (Ugale et al., 2019). The digitization of these government records in turn implies a ‘big data trail’, as a byproduct of people’s digital behaviour. For instance, a micro data point is created every time a firm submits a public procurement bid, a judge makes a court ruling, or a human resource department makes a monthly pay transfer to a public employee. This makes creating the raw material for government analytics far easier than before.

In short, now more than ever before, governments are equipped to undertake the government analytics necessary to understand and improve the machinery of public administration. Yet, despite having developed analytic capacity for service delivery by measuring *others* (such as firms and households), many governments are yet to harness the full power of data to measure *themselves* and their own operations. In other words, though government is increasingly developing an evidence base for its services, much further behind is the practice and evidence base for measuring the public administration that actually generates those services.

Existing country-level governance indicators, such as the Worldwide Governance Indicators, Transparency International’s Corruption Perceptions Index or the Freedom House Index (Transparency International, 2021; Kaufmann et al., 2022; Freedom House, 2021), have provided a window into the global distribution of government functioning. However, they are insufficiently granular to inform specific government improvements. Understanding, in broad terms, how effective a government is perceived to be by citizens and firms is helpful, but does not provide guidance on what specific actions governments could undertake to improve effectiveness. Government analytics does just that. It relies on micro data to diagnose specific inputs, management practices, outputs and

outcomes in specific organizations, units inside them and/or public administration as a whole. As such, it puts a more refined sense of reality into each official, manager and leaders hands. As a better sense of what society looks like eventually transformed public policy for the better, a better sense of what government administration looks like will eventually transform the public administration for the better.

No Silver Bullet, But A More Refined Discourse

Governments across the world make hundreds of thousands of personnel management decisions, undertake millions of procurements, and execute billions of processes each day. The public servants responsible for these activities possess extensive experience and knowledge of their respective administrations, which measurement and analytics - no matter how advanced - cannot replace. As was put to one of us, “you will never be able to measure away the public sector manager.” The innate knowledge of public officials is invaluable and irreplaceable.

Yet the core benefit of government analytics is a stronger evidence base to improve how public officials understand government administration. Rather than substituting for the knowledge of and discourse on the public service, analytics are a strong complement to it. For example, Dal Bó et al. (2021) experiment with the roll-out of a monitoring technology to support agricultural extension workers in Paraguay. They find that managers are able to predict which of their staff will benefit most from the program, strengthening its impacts. Like in the rest of the economy, analytics and technology are a great complement to those who capitalize on them. And without analytics, valuable data trails are being left unexplored, which could lead to missed opportunities for improved decision-making and service delivery.

For example, by utilizing the data sets discussed in the Handbook, government officials can gain valuable insights to help allocate staff across offices or tasks. When officials recognize the strengths of staff in similar organizations, they can better optimize their own staff for specific activities. Similarly, managers can identify outstanding managers in similar organizations and broaden their conversations to include those who have repeatedly demonstrated great management skills. This doesn’t mean that managers must abandon their own style, but rather they can learn from the best practices of others. Furthermore, the use of survey data can help governments meet the increasing employee expectations for evidence-based staff management, as private firms have already been

doing. As in the example that began this chapter, surveys give employees a voice they wouldn't otherwise have, enriching conversations and providing valuable insights to managers across the service.

Analytics makes internal accountability on these topics more effective. When numbers refer to the productivity of an entire sector or a large network of organizations, it can be difficult to hold relevant parties accountable for their performance. However, government analytics can enable heads of state to hold the relevant heads of organizations accountable, and heads of organizations can hold the relevant managers of units within the organization accountable. For example, the head of a social security agency can hold directors of regional offices accountable when the speed and quality of social security claims processing at their office falls well below that of other offices. Ultimately, the use of government analytics can enrich the discourse in government so that it is more targeted, more engaged with best practices from within the public service, and more grounded in reality.

Government analytics can also enhance public discourse about the machinery of government more broadly. By making analytics public, citizens, civil society, and the media can hold the government accountable for how it manages public administration. This can be particularly important when analytics reveal that the machinery of government is not being administered in the public interest. For example, citizens may be interested in knowing how procurement contracts are awarded and whether public sector jobs are based on merit or political grounds. And as above, analytics ensures that public accountability is targeted to organizations where improvements are needed most, rather than unfairly spreading blame across the entire government and reducing the likelihood that any single organization will change (Dunleavy, 2017).

The Obstacles To An Analytical State

Government analytics thus promises a transformative shift towards evidence-based and continuous improvement of government administration. Why then have many governments not adopted analytics of their administration as proactively as their private sector counterparts?

One reason, we believe, lies in the lack of systematic evidence on how to do government analytics, and the lack of a systematic compilation of the methods and data available to governments to this end. Our Handbook is motivated by – and hopes to provide a first step towards addressing

– this gap.

A second reason is skill shortages for government analytics inside many public sector organizations - both to undertake analytics and to use analytics to improve management. Chapter 3 of this book provides a roadmap towards addressing these skill shortages, for instance by creating government analytics units inside public sector organizations.

Third, digital records are often primarily designed to enable government operations – for instance the award of a contract tender – rather than the analytics of such operations. As such, governments need to make investments to repurpose government records for analytics - for instance by connecting, storing and analyzing data in a cost-effective and secure manner (de Mello and Ter-Minassian, 2020). Similarly, digitization of communication has brought substantial cost savings for the administration of online employee surveys – a second important data source for government analytics. This makes data collection cheaper and quicker, making it easier for governments to obtain in-depth feedback from employees at scale and to do so more frequently. It, again, however requires analytic investments of governments into designing, implementing, interpreting and making use of employee survey results for improving administration.

Beyond these obstacles are, however, at least four thornier limits inherent to the analytics of public administration: (1) Measurability of outputs and outcomes; (2) Institutional complexity; (3) Political disincentives to measure; and (4) Ethical constraints on measurement. Government analytics requires careful navigation of each of them.

First, not all outputs or outcomes of public administration can, in fact, be measured. Contrary to a private sector firm with a bottom line, public administration organizations have multi-dimensional missions and tasks whose outcomes and associated processes are often challenging to measure accurately. For instance, how can the quality of policy advice by civil servants to Ministers, or the quality of a budget a Ministry of Finance prepares for submission to parliament, be measured at scale? Not everything that matters in public administration can be measured. This has made constituencies wary of investing heavily in measurement innovations in the public administration, and why analytics templates from private sector firms can not be indiscriminately copied and applied in public sector organizations.

Our book’s response to these limits of observability in public administration is to improve, extend and expand measurement while respecting its limits. This allows public managers to have the best possible knowledge available for administrative improvement. As there are, even with better

measurement, inherent limits to what can be measured in public administration, public managers need to remain cognizant of the limits of measurement and triangulate data with other forms of knowledge when devising administrative improvements. Otherwise, imperfect measurement can generate a series of unintended and adverse consequences for public management – from effort substitution to gaming performance measures, for instance, as a large literature on performance management in public sectors has found (cf. Hood, 2006).

A second challenge is institutional. Public sector reforms struggle with path dependencies (Gains and Stokes, 2005). Overhauling data infrastructures and monitoring structures is difficult when organizations fall under different mandates and jurisdictions. Implementation times might extend far into or even span several legislative periods, impairing political incentives for change.

Third, government analytics generates numbers and data which were previously not available. The creation of such data – much like greater transparency in government generally – will sometimes generate political winners and losers (Dargent et al., 2018). To illustrate, as one of us has witnessed, creating data on the scale of recruitment into government based on personal connections rather than merit can generate an avalanche of media reports (Schuster et al., 2020). Government analytics is thus not apolitical, and undertaking government analytics requires sensitivity towards political economy. Analysts need to understand what different government actors want to know and what they want to *not* know about the machinery of public administration. Individual analysts and officials will have to negotiate the politics of their setting. It is our belief that producing and publishing a broader and more accurate set of government analytics will eventually lead to a better discourse within government, and a better government, for society at large.

Lastly, collecting data on public servants raises ethical concerns, which may limit the scope of analytics. In public administration, ethical considerations are further complicated by trade-offs between individual employee demands for privacy and public demands for values such as productivity, innovation and accountability of public administrations. Balancing these considerations appropriately is thus central to an ethical pursuit of government analytics, but also implies limits: not everything that can be measured should be measured from an ethics perspective (Wittels, 2023).

For understandable reasons then, the public sector is slower to capitalize on the data revolution than private firms. Much of what it must focus on is harder to measure and requires balancing a greater number of considerations than most private sector activity, be those institutional, political

or ethical. Governments have thus fallen behind in their use of modern analytic methods to design and manage public administration. But as our introductory stories of how data was successfully used for management improvement in Brazil, Nigeria and the U.S. show, this need not be the case. Government analytics can be powerful if leveraged in the right way to refine the discourse in government.

Government Analytics as an Approach to Strengthening Public Administration

How should governments go about the business of improving government administration? And how should others – such as international development organizations – support these improvement processes?

The answer in many countries has been better laws which align governments with ‘best practices’ for the administration of government. However, implementing ‘best practice’ public financial management legislation alone has had limited impact in many contexts (Andrews, 2013). Similarly, the number of countries with ‘best practice’ merit-based civil service legislation on the books has multiplied across the world, yet brought little improvement in merit-based civil service practices (Schuster, 2017). Global ‘best practice’ may not be an appropriate fit for many country contexts (Grindle, 2004, 2007). Legislation requires a catalyst to make it the reality of government practice.

Practitioners have been urged to focus on identifying local administrative problems facing particular organizations and iterate over potential solutions (Andrews, 2013; Pritchett et al., 2017). We agree that focusing on addressing specific organizational problems is central to management improvement in public administration. This, however, begs an immediate question: what helps officials and governments know which administrative problems are faced by which teams, and how isolated are those problems in specific public sector organizations? How can we know whether solutions – developed locally or borrowed from other countries or global best practice – have effectively resolved the targeted problems?

Government analytics which leverages government-wide micro-data to diagnose every team in every public organization – through the data sources outlined in our Handbook for example – can address this information gap at scale. It can help the government as a whole, organizations and individual teams better understand the specific management problems they are facing. Through

benchmarking with other teams, organizations or governments, data analytics can also shed light on opportunities for improvement and who might already be practicing them. And after actions to improve are taken, analytics can help practitioners understand whether those actions were effective - for instance in terms of lower procurement costs, lower staff turnover, or better ratings of the quality of managerial leadership according to employee surveys.

Managerial action should, of course, not be taken in isolation just based on analytics data. As stated above, by definition, governments will always face measurement challenges and boundaries. This puts public sector decision-makers at the heart of the interpretation of findings from analytics. Responding to them requires triangulation of analytical findings with practical and tacit knowledge. In other words, what government analytics can do is strengthen the quality of conversations about how to improve public administration, rather than dictating managerial responses to specific analytics finding. Those conversations about improvement may be in a department of local government, Ministry of Civil Service, or may even span countries and the international community. It may involve government employees, service users and others rather than just the solitary interpretation of analytics findings by managers. In short, government analytics generates evidence for better conversations – and thus decisions – about how to improve the public administration.

This cycle is, of course, iterative and not necessarily linear. At times, government analytics can shed light on management problems which managers were unaware of – as with the introductory example of the former marine managing a team in the U.S. federal government. At times, managers may sense a potential problem – as with Brazil’s wage bill – which motivates analytics to better estimate the scale and nature of the problem.

Our intention is thus not to dictate a unitary approach to measurement. Instead, in the following 29 chapters, we present an overview of many of the most common approaches to government analytics, and present some evidence from across the world for them. We hope this provides a framework which government officials and analysts can draw on to pick and choose particular analytical approaches of particular use to them. Greater use of government analytics in turn will further the evidence base on how to best undertake government analytics.

This matters because effectively measuring the state allows us to manage it better. The best version of government arises from basing its design and management on the best data achievable as to how government is functioning. Having good policies matters, but much less without an effective machine to implement them. In other realms, data has revolutionized productivity. It is

time to turn the lens on public administration.

References

- (2022). Wbg govtech maturity index 2022 update: Trends in public sector digital transformation. Technical report, World Bank.
- Acemoglu, D. and J. A. Robinson (2019). *The Narrow Corridor: States, Societies, and the Fate of Liberty*. Penguin.
- Akhtari, M., D. Moreira, and L. Trucco (2022, February). Political turnover, bureaucratic turnover, and the quality of public services. *American Economic Review* 112(2), 442–93.
- Andrews, M. (2013). *The limits of institutional reform in development: changing rules for realistic solutions*. Cambridge University Press.
- Besley, T., R. Burgess, A. Khan, and G. Xu (2022). Bureaucracy and development. *Annual Review of Economics* 14(1), 397–424.
- Best, M. C., J. Hjort, and D. Szakonyi (2017, April). Individuals and organizations as sources of state effectiveness. Working Paper 23350, National Bureau of Economic Research.
- Bloom, N. and J. V. Reenen (2010). New approaches to surveying organizations. *The American economic review* 100(2), 105–109.
- Bloom, N., R. Sadun, and J. Van Reenen (2010). Recent advances in the empirics of organizational economics. 2(1), 105–137.
- Brynjolfsson, E., Y. Gorodnichenko, and R. Kuehn (2021). Predictive analytics and the changing nature of productivity in manufacturing. *Proceedings of the National Academy of Sciences* 118(13), e2017984118.
- Carrera, L. and P. Dunleavy (2013). *Growing the productivity of government services*. Cheltenham: Edward Elgar.
- Cusolito, A. P. and W. F. Maloney (2018). Productivity revisited: Shifting paradigms in analysis and policy. washington, dc: World bank. Report, World Bank.
- Dahlström, C. and V. Lapuente (2022). Comparative bureaucratic politics. *Annual Review of Political Science* 25(1), 43–63.

- 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.
- de Mello, L. and T. Ter-Minassian (2020). Digitalisation challenges and opportunities for subnational governments. (31).
- Deaton, A. (2003). Household surveys, consumption, and the measurement of poverty. *Economic systems research* 15(2), 135–159.
- Dunleavy, P. (2017). Public sector productivity.
- Fenizia, A. (2022). Managers and productivity in the public sector. *Econometrica* 90(3), 1063–1084.
- Ferraz, C., F. Finan, and D. B. Moreira (2012). Corrupting learning: Evidence from missing federal education funds in Brazil. *Journal of Public Economics* 96(9), 712–726.
- Fetzer, T. (2021). Did COVID-19 improve global health? a mixed-methods analysis of the global health effect of the COVID-19 pandemic. *The Lancet* 1(1), e10–e18.
- Finan, F., B. A. Olken, and R. Pande (2015). The personnel economics of the state. *Handbook of Economic Field Experiments*.
- Freedom House (2021). Freedom in the world. <https://freedomhouse.org/report-types/freedom-world>. Data file.
- Gains, J. and S. Stokes (2005). Path dependencies and policy learning in comparative public policy. *Governance* 18(3), 475–498.
- Grindle, M. S. (2004). Good enough governance revisited. *Development Policy Review* 22(6), 695–703.
- Grindle, M. S. (2007). *Going local: decentralization, democratization, and the promise of good governance*. Princeton University Press.
- Hasnain, Z., D. Rogger, D. Walker, K. Kay, and R. Shi (2019). Innovating bureaucracy for a more capable government.
- Kaufmann, D., A. Kraay, and M. Mastruzzi (2022). Worldwide governance indicators. <https://datacatalog.worldbank.org/dataset/worldwide-governance-indicators>. Data file.

- Khan, A. Q., A. I. Khwaja, and B. A. Olken (2019, January). Making moves matter: Experimental evidence on incentivizing bureaucrats through performance-based postings. *American Economic Review* 109(1), 237–70.
- Khurshid, A. and C. Schuster (2023). Surveys of public servants: The global landscape. In D. Rogger and C. Schuster (Eds.), *The Government Analytics Handbook: Leveraging Data to Strengthen Public Administration*, Chapter 18. Washington, DC: World Bank.
- Kraay, A. (2006). When is growth pro-poor? evidence from a panel of countries. *Journal of Development Economics* 80(1), 198 – 227.
- Pepinsky, T. B., J. H. Pierskalla, and A. Sacks (2017). Bureaucracy and service delivery. *Annual Review of Political Science* 20(1), 249–268.
- Pritchett, L., M. Andrews, and M. Woolcock (2017). Escaping capability traps through problem driven iterative adaptation (pdia). *World Development* 99, 74–84.
- Rasul, I. and D. Rogger (2018). Management of bureaucrats and public service delivery: Evidence from the nigerian civil service. *The Economic Journal* 128(608), 413–446.
- Schuster, C. (2017). The rise of merit-based civil service legislation: A double-edged sword. *Governance* 30(2), 237–254.
- Somani, R. (2021). The returns to higher education and public employment. *World Development* 144, 105471.
- Transparency International (2021). Corruption perceptions index. <https://www.transparency.org/en/cpi/YYYY>. Data file.
- Ugale, G., A. Zhao, and M. Fazekas (2019). Analytics for integrity: Data-driven approaches for enhancing corruption and fraud risk assessment. Report, OECD.
- Wilson, J. Q. (1989). *Bureaucracy: What government agencies do and why they do it*. Basic Books.
- Wittels, A. (2023). The ethics of measurement of public administration. In D. Rogger and C. Schuster (Eds.), *The Government Analytics Handbook: Leveraging Data to Strengthen Public Administration*, Chapter 6. Washington, DC: World Bank.
- World Bank (2016). *World Development Report 2016: Digital Dividends*. World Bank Publications.

World Bank (2020). Worldwide bureaucracy indicators.