PRACTICALLY SPEAKING

How scholars can support government analytics: Combining employee surveys with more administrative data sources towards a better understanding of how government functions

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Abstract

With the digitization of administrative systems, governments have gained access to rich data about their administrative operations. How governments leverage such data to improve their administration—what we call government analytics—will shape government effectiveness. This article summarizes a conceptual framework which showcases that data can help diagnose and improve all components of a public administration production function—from inputs such as personnel and goods, to processes and management practices, to outputs and outcomes. We then assess to what extent public administration scholarship analyses these data sources and can thus inform government analytics. A review of 689 quantitative articles in two public administration journals in 2013–2023 finds that 50% draw on surveys of public employees and 25% on surveys of citizens or firms. By contrast, administrative micro data (14% of articles) are underexploited. Practitioners and scholars would thus do well to expand the data sources used to inform better government.

Practitioner points

- Organizations are capitalizing on data innovations on an unprecedented scale to enhance productivity. In the public sector, with the digitization of administrative systems, governments around the world now have a plethora of digital records of their own administrative operations—from procurement transactions to the processing of case files to payroll records, to name a few. As a result, government operations which account for a significant share of the global economy are now captured in digital administrative records in most countries. Public procurement, for instance, accounts for at least 12% of global GDP, while public payrolls represent almost 10% of global GDP.

- These records can be repurposed as data points in support of more evidence-based decision-making about public administration. They can help governments understand a myriad of public administration challenges—from what drives public sector turnover to why some offices process administrative cases (such as social security applications) faster than others, to why some organizations pay more for the same goods and services than others. This is what we call "Government Analytics"—the systematic practice to capitalize on survey and administrative data inside governments to assess how well government organizations and units are functioning, where they are at their best, where they are falling behind, and how to improve.

- How governments leverage such data to improve their own administration will arguably be a key determinant of their effectiveness going forward. Yet, to-date, there is a lack of systematic government analytics practice in public sector

organizations, with many data sources remaining under-utilized. As a result, many governments are missing out on the potential insights available to them for improving their public administrations.

- Drawing on the "Government Analytics Handbook," this article provides guidance which helps government address some of the lacunae in their analytics. The article summarizes a conceptual framework which helps governments think systematically about the range of data sources available to diagnose components of a public administration production function and enhance public sector productivity—from inputs such as personnel and goods, to processes and management practices inside government organizations, to outputs and outcomes of public administration.

- To assess inputs into the production function, administrative data sources are particularly insightful given their breadth of coverage. By way of example, payroll and human resources management information system (HRMIS) data can help governments assess personnel inputs, for instance, the fiscal sustainability of public pay or the adequacy of staffing levels. Budget data and procurement data can provide insights into spending on goods and capital across procuring entities.

- Government analytics can also illuminate the processes and practices that transform inputs into outputs and outcomes. Surveys of public servants are particularly effective at diagnosing the quality of management practices. Task and process data can help governments understand the quality of internal processes, such as adherence to government procedures or whether deadlines are met or missed.

- How effective these practices and processes are in converting inputs into outputs and outcomes is mediated by the norms, attitudes, and behaviors of public administrators. Surveys can help gauge, for instance, how engaged and committed public administrators are. HRMIS data can complement surveys by providing insights into digitally recorded behaviors, such as sick leave. Finally, government analytics can shed light on the outputs and outcomes of public administrations and of frontline providers. Administrative case data, for instance, can provide insights into outputs and productivity of administrative organizations (for example, the number of tax or social security cases processed by an office in a month). Surveys of households, firms, and citizens can complement this perspective through an external assessment, for instance of satisfaction with public services.

- Governments can thus identify bottlenecks and improvement opportunities across the public administration production through government analytics data—often with data they can draw from their own records. The "Government Analytics Handbook" provides guidance and starting points on how to analyze different government analytics data sources across dozens of chapters.

- Governments may also benefit from collaborations with scholars in government analytics. Public administration scholars have developed extensive expertise in surveying public servants, citizens, and firms—though, as of yet, bring less depth of experience with administrative micro data in government. Scholar-practitioner collaborations could thus be mutually beneficial—for instance by showcasing the possibility frontier of how government analytics data can be used, by helping governments develop methodologically sound approaches to analyzing their administrative micro data, and by improving knowledge about effective practices and ineffective administrative practices. Government analytics can thus be a vehicle for better research and better practice.

INTRODUCTION

The scale and significance of government activity underscores the critical importance of effective public sector management. Public procurement, for instance, accounts for at least 12% of global GDP (World Bank, 2020). Public payrolls represent almost 10% of global GDP (World Bank, 2024). How these resources are managed impacts societal welfare, the functioning of private sector markets, and the nature of economic development. The way in

which government actors collect and respond to measures of the functioning of government thus has substantial implications. This article argues that practitioners and scholars alike are under-utilizing a key resource for such management—administrative records. And they are doing so at a time that such records are more available than ever before.

Public administrations are being transformed by digital systems (World Bank, 2022). Most governments now have digital systems for many of their administrative operations—from paying public servants to procuring goods to processing tax cases. Figure 1 shows the growth in such systems in public sectors across the world. Up until the mid-2000s, only a minority of countries had digital management information systems (MIS) for key operations such as procurement, payroll, or financial management, among others. By 2020, it was a wide majority.

Governments undertake millions of transactions through its digital systems, and they facilitate the administrative operation of government. For instance, when paying public servants or contractors, or when processing tax, social security, job, or passport cases—to name a few. However, these digital transactions and records enable more than just better government operations. They can also be conceived of and repurposed as data points in support of more evidence-based decision-making about public administration (Rogger & Schuster, 2023). By using them as data points, they can help governments understand a myriad of public administration challenges—from what drives public sector turnover, to why some offices process administrative cases faster than others, to why some organizations pay more for the same goods and services than others.

This is what we call "Government Analytics"—the systematic practice to capitalize on survey and administrative data inside governments to assess how well government organizations and units are functioning, where they are at their best, and where they are falling behind, and how to improve. In other words, government analytics refers to the use of data to diagnose and improve the machinery of government, or core public administration. While an extensive literature on measuring public service delivery and the outputs and outcomes of "street-level bureaucrats"—such as teachers, doctors, or policemen—exists (Amin et al., 2008), we complement this with a focus on measuring the core public administration where measurement is more challenging.

Studies suggest that the potential cost savings and productivity gains of government analytics are significant (Best et al., 2023). Even small tweaks based on government analytics can lead to surprisingly large improvements in the speed and quality of government. One study, assessing the productivity of social security offices in Italy, suggests that merely reallocating a strategic subset of managers based on administrative data could improve processing of social security claims by 7 percent (Fenizia, 2022).

The private sector has seen significant productivity and innovation gains from better data use (e.g., Wu et al., 2020). Government could have an analogous increase in its use of administrative data for improved government functioning. In some domains, there has in fact been progress. For instance, the number of governments undertaking regular, repeated (every year or every 2 years) government-wide public servant surveys has increased over the last decade, reaching at least nine countries in 2021 (Khurshid & Schuster, 2023). Numerous governments also, on occasion, undertake specific high-impact analytics projects. For instance, in Brazil, payroll data analytics alerted the government to skyrocketing future pension costs and informed legislation to change
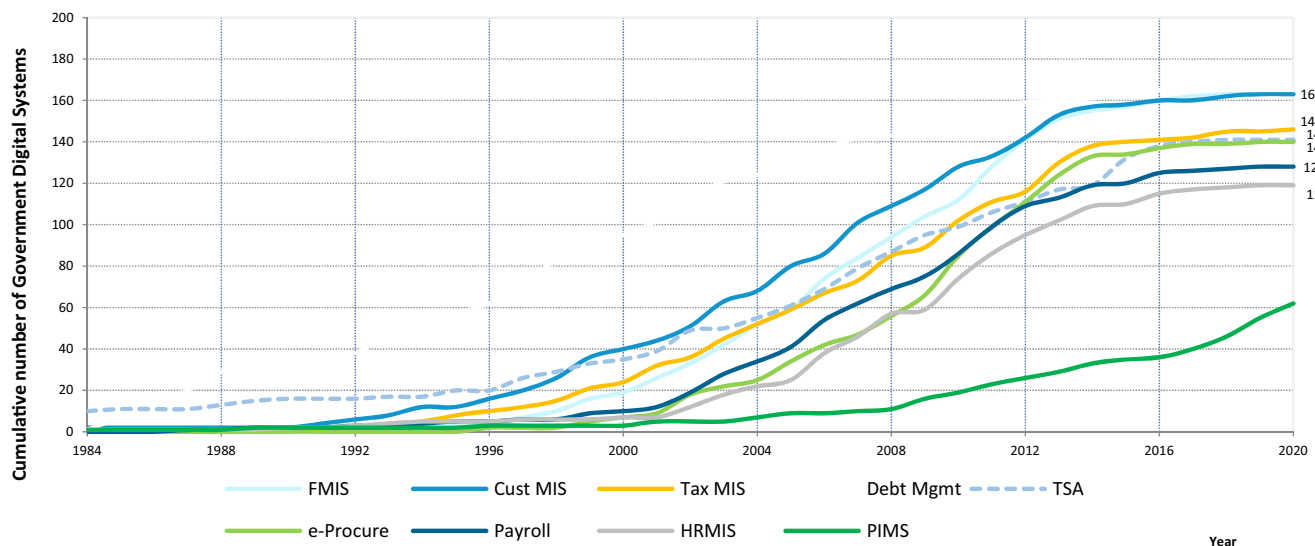

FIGURE 1 Diffusion of government digital systems (1984–2020). *Source*: adapted from World Bank (2022)

compensation rules and avert a budgetary crisis (Tavares et al., 2023). In Kosovo, civil service surveys identified politicization and nepotism as key challenges in civil service recruitment and informed the adoption of new legislation by the government to strengthen merit-based recruitment (Meyer-Sahling, 2021). The list goes on, ranging from procurement analytics to address corruption in Romania to public expenditure tracking systems to improve spending decisions in Nigeria to HRMIS data analytics to inform pay increases in the UK (Rogger & Schuster, 2023).

Yet, as the recent "Handbook of Government Analytics" underscores across 30 chapters, despite occasional analytics projects, "there is a lack of systematic [government analytics] practice in governments as a whole," with many data sources remaining under-utilized (Rogger & Schuster, 2023, p. 3). As a result, many "governments are missing out on the potential insights available to them for improving their public administrations at scale" (Rogger & Schuster, 2023, p. 3).

This lack of systematic government analytics practice is remarkable. The use of data in public policy has exploded (Knill & Tosun, 2020), as has the use of data in service delivery—for instance to measure student learning, hospital occupancy, or police arrests (Amin et al., 2008). Moreover, governments—and, in fact, the public as a whole—often have the records and data available to conduct government analytics at scale. To name just two examples of increasingly public data sources: procurement micro (contract)-data are publicly available for 45 countries in the Procurement Integrity dataset (ProACT, 2022). Under government transparency and access to information regulations, an increasing number of governments also publish individual-level data from their entire payrolls online (e.g., Brazil Portal da Transparência do Governo Federal, n.d.; Chile Consejo para la Transparencia, n.d.) or make such data publicly accessible on their websites (e.g., Colombia Función Pública, n.d.).

Governments could thus—at relatively low cost—reap significant evidence gains from analyzing data already available to them. This is not to say that government analytics is without challenges. For instance, many public sector organizations suffer from skill shortages for government analytics—both to undertake analytics and to use analytics to improve management. Additionally, digital records are created to facilitate government operations—like awarding contract tenders—rather than for analyzing these processes. To utilize these records for analytics, governments must invest in repurposing them by integrating, storing, and analyzing the data in a secure and cost-efficient way (Rogger & Schuster, 2023). Yet, arguably, the benefits of government analytics of digital records often outweigh the costs of repurposing existing records and upskilling staff.

Equally, the availability of such data opens up significant opportunities for public administration scholarship—more data sources to study public administration, and more avenues to shape practice through scholarly data analysis. With the increasing turn towards quantitative research in public administration (Pitts & Fernandez, 2009), there is no shortage of scholarship which could, potentially, be based on such sources. To what extent is public administration scholarship drawing on the full range of micro-data sources available to study the core public administration and thus informing government analytics?

Answering this question matters for scholarship and practice. For scholarship, it matters as neglecting data sources undermines knowledge accumulation about public administration. It implies that certain topics in public administration for which certain data sources are particularly suitable—say case data to improve the scholarly understanding of the determinants of public administration productivity, based on objective productivity measures—might remain understudied. It also matters for practice. Scholarly research on data for government analytics could inform better and more systematic practice in government—for instance by showcasing the possibility frontier of how such data can be used, by helping governments develop methodologically sound approaches to analyzing their administrative micro data, and by improving knowledge in government about effective practices and ineffective administrative practices.

This article thus ultimately seeks to strengthen cross-fertilization between academics and practitioners in government analytics. To do so, the article first conceptualizes the range of potential data sources to diagnose and improve the core public administration. It delineates these data sources within a public administration production function developed in the Government Analytics Handbook (Rogger & Schuster, 2023). A production function relates input factors of production (e.g., capital, goods, personnel) through processes (e.g., management practices) to the output of an organization (e.g., a tax audit undertaken), and their eventual outcomes (e.g., greater tax revenue). Data sources can be mapped to each component of the production function. This provides scholars and practitioners with a holistic understanding of the micro data sources available to diagnose public administration.

Subsequently, this article assesses to what extent scholarship in fact analyses or draws on data sources which are capable of informing "government analytics." To do so, it undertakes a systematic review of all quantitative empirical articles published in 2013–2023 in two premier public administration journals: *Public Administration Review* and the *Journal of Public Administration Research and Theory*. Based on hand-coding the data sources mapped in the public administration function (e.g., surveys of public servants, citizen surveys, procurement data, case data, workforce data) and scope (core public administration, frontline, or other), the article sheds light on the data sources widely used (or not) by scholars to study public administration, and how this has evolved
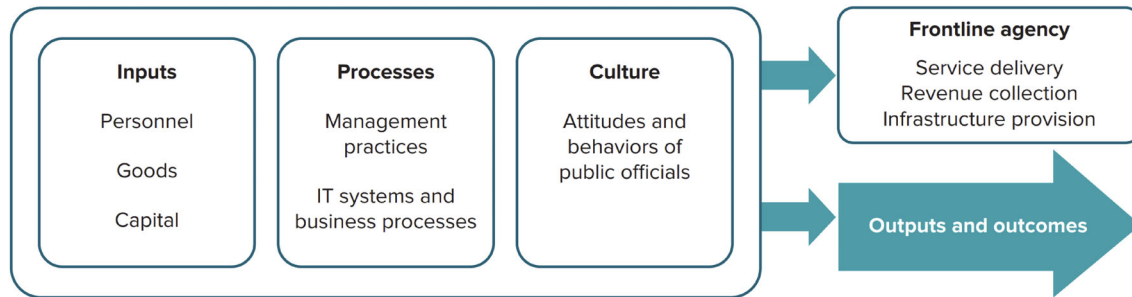
FIGURE 2 The public administration production function. *Source*: Rogger and Schuster et al. (2023)

over the last decade. The review underscores that scholarship heavily draws on data from surveys (of public servants, citizens and firms) but underexploits administrative micro data. For instance, 1% of articles draw on procurement data, yet public procurement represents 12% of global GDP.

The article concludes that academics can learn from practice and the opportunities arising from the digitization of government systems, paying more attention to the range of administrative micro data sources now available. Vice versa and by doing so, academics can become more impactful in practice. As noted, many governments underutilize their own administrative micro data for analytics, often because of gaps in knowledge and skills in how to use such data. Scholarship can play an important role in addressing those gaps and drive better government analytics in practice.

CONCEPTUAL FRAMEWORK: THE PUBLIC ADMINISTRATION PRODUCTION FUNCTION

To catalogue potential data sources to measure the core public administration, a public administration production function is drawn on. A production function relates input factors of production to the outputs or deliverables of an organization, and their eventual outcomes. The productivity of an organization thus depends on the quality and quantity of outputs relative to inputs. Figure 2 visualizes the different components of the production function for public administration, reproducing the production function in the Government Analytics Handbook (Rogger & Schuster, 2023).

Inputs encompass personnel (public employees), goods (like computers), and capital (such as office space). Outputs are deliverables of core public administration organizations, such as a ministry of finance issuing public sector debt at a specific interest rate. Additionally, public administration organizations produce outputs (activities) that support frontline public sector agencies—like hospitals, schools, or police forces—in providing services and goods to citizens. For instance, a ministry of finance may oversee budgets that frontline agencies use

to deliver their services. The outcomes in these examples include improved health, education, and public safety.

How do public administrations transform inputs (like personnel) into outputs and outcomes? This process, in our production function, is facilitated by policies (organizational objectives and work procedures), systems, and management practices, and mediated by norms and behaviors within public administration. For example, a ministry of finance might have a policy requiring a budget review for an organization by a specific date. A team leader within the ministry then oversees employees to ensure the task is completed efficiently and on time, for instance, by using effective performance management practices. These practices and organizational policies shape the employees' norms and behaviors—such as their motivation to work diligently—which then enables the ministry to produce outputs like a budget review.[1]

Government analytics, by leveraging various data sources, can illuminate every part of the production function and identify bottlenecks—ranging from overpriced input goods to ghost workers on the payroll to high staff turnover or slow administrative case processing, to name just a few. Figure 3 demonstrates how different data sources align with components of the production function. Certain types of administrative data are particularly effective in diagnosing inputs in the public administration production function. To illustrate, payroll data and human resources management information system (HRMIS) data can help governments assess personnel inputs, for instance, the fiscal sustainability of public servant pay or the adequacy of staffing levels. Budget data and procurement data can provide insights into spending on goods and capital. For example, they enable governments to determine whether similar goods are being acquired cost-effectively across various public administration organizations.

Government analytics can also illuminate the processes and practices that transform inputs into outputs and outcomes. Surveys of public servants are particularly effective at diagnosing management practices, as management quality is fundamentally experienced by employees through their interactions with managers. These surveys can, for example, ask public servants about their perceptions of their superior's leadership or the
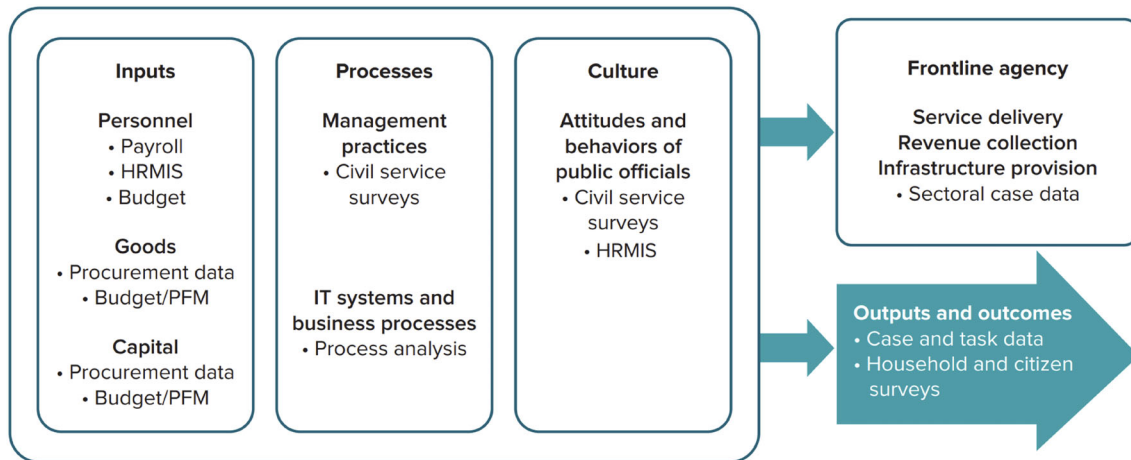
FIGURE 3 Data sources to measure the core public administration, along the public administration production function. *Source*: Adapted from Rogger and Schuster et al. (2023)

quality of their performance feedback. Government analytics can also evaluate the quality of internal processes in public administration, such as adherence to government procedures or whether deadlines are met or missed. The effectiveness of these practices and processes in converting inputs into outputs and outcomes is mediated by the norms, attitudes, and behaviors of public administrators. Surveys can help gauge, for instance, how engaged, committed, and ethical public administrators are. Additionally, HRMIS data can complement survey data by providing insights into specific digitally recorded behaviors of public employees, such as turnover rates, overtime work, or sick leave.

Finally, public administrations generate both their own outputs and outcomes and facilitate the outputs and outcomes of frontline providers. The productivity of frontline service delivery agencies like hospitals, schools, and police forces has been extensively measured, largely due to their direct interaction with citizens, allowing for more straightforward measurement of service delivery outcomes (such as patient outcomes in hospitals or learning outcomes in schools). Government analytics as conceptualized here, instead, focuses on the analytics of administrative outputs and outcomes. Administrative case data are a key measurement source in these contexts, often routinely collected by organizations (for example, the number of tax or social security cases processed, or the percentage of freedom of information requests answered on time). These data can be repurposed to measure outputs and outcomes (such as the amount of tax revenue generated) and assess productivity. In addition to administrative data, surveying households, firms, and citizens can be a valuable data source for understanding the outcomes of public administration (e.g., by asking about their trust in public administration organizations).

In short, a wide range of different data sources can be drawn on to measure the core public administration. Yet,

despite the availability of such data—also thanks to the digitization of administrative systems—governments lack systematic practice in assessing many of these data sources. As mentioned, this stylized fact motivated the "Handbook of Government Analytics." The Handbook lays out, across 30 chapters which cover the range of government analytics data sources, evidence on how to best leverage insights from these data sources to improve public administrations at scale.

The digitization of administrative systems, however, not only opens up avenues for better government through better analytics of the core public administration. It also opens up avenues for new scholarship, drawing on a broader range of administrative micro data sources to, first, further our understanding of public administration and, second, shape government practice in government analytics. To what extent has public administration scholarship seized this opportunity to study micro data across the public administration production function to inform research and practice? We conducted a systematic literature to assess this question.

METHOD: SYSTEMATIC LITERATURE REVIEW

Our review focuses on two premier academic journals in public administration, which regularly appear in other literature reviews in public administration (e.g., Ospina et al., 2018)—*Public Administration Review* (PAR) and the *Journal of Public Administration Research and Theory* (*JPART*).[2] To be able to assess trends—in particular whether the diffusion of government digital systems has been paralleled by greater scholarly attention to administrative micro data—we review articles published over the last decade, from 2013 to 2023.

In light of our purpose—to assess which micro data sources are drawn on in public administration studies—our analysis focuses on articles with quantitative empirical

work.[3] We identify relevant articles through a census sampling approach: reading all abstracts and methods sections of research articles in the two journals. We are agnostic about whether articles focus on central, regional, or local government organizations. We are also agnostic about whether the data in question measures an independent variable or dependent variable. In total, this approach yielded 689 articles, of which 407 were published in PAR and 282 published in JPART.[4]

We then coded articles in three steps. In a first step, we coded whether articles measured the "Core public administration," "Frontline (including service delivery (e.g., hospitals, schools, police), infrastructure, and revenue collection)" or "Other (e.g., NGOs, courts, parliament)." Studies which included both core public administration and frontline data or samples were coded as both core public administration and frontline.[5] As detailed below, 612 articles (89% of the total) focus on "core public administration" and/or "Frontline."[6]

Within this sample of 612 articles, we then coded, in a second step, whether articles drew on (1) surveys of public employees; (2) surveys of citizens, service users, households, or firms; (3) administrative data related to measuring public administration, including budget and expenditure data; workforce, HRMIS, and payroll data; procurement and contract data; or case and task data (e.g., FOI requests, social security applications, police arrests); and (4) Other data, including—for example—expert assessments, social service delivery outcome data (such as crime rates or mortality rates), surveys of politicians, data on the creation or termination of organizations, data on policies, and demographic data about municipalities or regions.

All data sources included in an article were coded. An article can thus have multiple different data sources.[7]

In a third step, we differentiated in our coding between different types of administrative data for government analytics, following the data sources identified in the production function in Figure 3. Consistent with the conceptual framework presented above, our coding differentiates: (1) budget and expenditure data; (2) workforce, HRMIS and payroll data; (3) procurement and contract data; and (4) case and task data. As with the second coding step, all data sources included in an article are coded; and article can thus have multiple different administrative data sources.

In a final step, we coded whether studies drawing on administrative data to measure public administration used micro-level data. Within government analytics micro data, we refer to, for instance, individual employees in a public payroll dataset; contracts in a procurement dataset; line items in a budget or expenditure data set; or individual cases or tasks in case or task datasets (e.g., individual FOI requests or individual applications to social security).
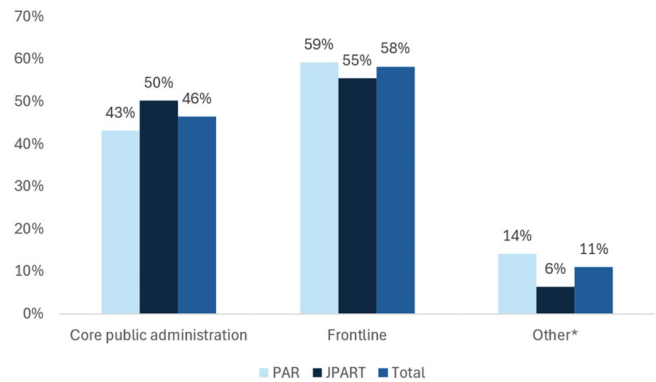

FIGURE 4 Focus of quantitative public administration research (2013–2023), by journal.

We code articles as drawing on micro administrative data when at least at least one administrative data source is analyzed at the micro-level. By contrast, we code the article as drawing on aggregate data when none of the administrative data sources in the article are analyzed at the micro-level (e.g., share of teachers who are female, total budget expenditure by a municipality, share of state budget spent on procurement). This matters since, as we detail below, most administrative data in public administration research are, in fact, aggregate data (e.g., organizational averages or regional averages).[8]

RESULTS: GOVERNMENT ANALYTICS DATA SOURCES IN PUBLIC ADMINISTRATION RESEARCH

In a first step, as noted, we subset our articles to those measuring the core public administration and/or frontline (Figure 4). These account for 612 articles (89% of all coded articles). Over half (58%) of articles include measures related to the frontline, and 46% measures related to the core public administration. Just 11% of articles focus on other (e.g., NGOs, courts, parliament). A relatively similar pattern is observed in JPART and PAR (Figure 4), and over time (Appendix Figure A1).

Within the sample of 612 articles focused on core public administration and/or the frontline, our review finds that half (50%) draw on data from surveys of public employees. A quarter (25%) draws on data from surveys of citizens, service users, households, or firms. Almost one third (31%) of articles draw on a broad range of other data—such as expert assessments, social service delivery outcome data (e.g., crime rates or mortality rates), surveys of politicians, data on the creation or termination of organizations, data on policies, and demographic data about municipalities or regions, to name just a few. Administrative data to measure public administration—at the aggregate or micro-level—is used in 36% of studies.[9]

However, most public administration studies which use administrative data draw on aggregate administrative data. Often used in regression controls, aggregate data refer to, for instance, the total expenditures on teachers by a school district, or the total number of arrests made by a police in a state in a given time period. Only 14% of studies analyze administrative micro data—compared with 50% analyzing micro data from public servant surveys and 25% analyzing micro data from surveys of households, citizens, service users, or firms (Figure 5).

Which administrative micro data sources within the public administration production function do scholars study? Our review suggests that case or task processing data are most frequent, though still rare as an overall share of articles (7%). Individual case or task processing data features both in studies focused on core public administration (e.g., freedom of information requests) and frontline service delivery (e.g., police arrests, social security applications).

This is followed by individual-level workforce, HRMIS, or payroll data (6%). However, less than 1% of studies of articles coded analyze the micro payroll of an organization or government as a whole. This is even though government transparency regulations make such payrolls publicly accessible in a number of countries (e.g., Consejo para la Transparencia, n.d.; Función Pública, n.d.; Portal da Transparência do Governo Federal, n.d.). The bulk of studies drawing on micro workforce data instead focuses on individual-level career pathways or CVs of heads of agencies, political appointees, or other public servants in particular roles.

Finally, our review suggests that procurement (1%) and budget (2%) micro data are hardly used at all in public administration research (Figure 6).
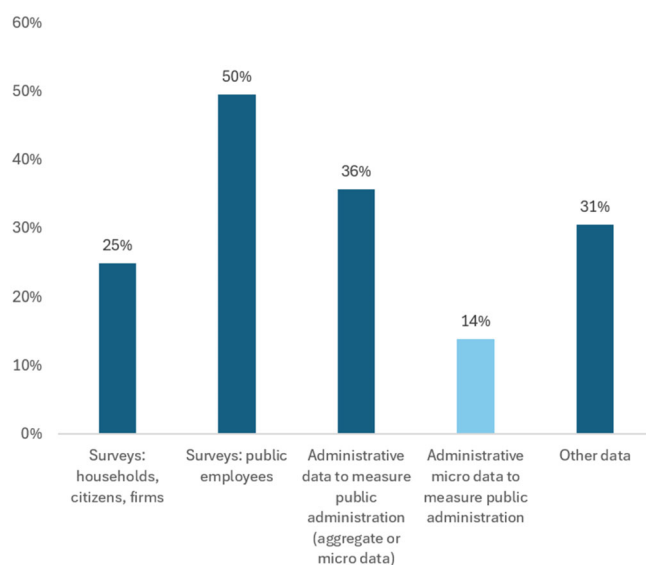
As Figure 7 illustrates, the limited focus on administrative micro data compared with survey micro data in public administration research is observable in both PAR and JPART. The similar patterns in both journals give us no reason to believe our findings are a relic of sampling articles within these two particular journals in public administration and provide suggestive evidence for generalizability of our findings to other public administration journals.

As noted, the availability of micro administrative data about public administrations in many countries has resulted from the digitization of government digital systems over the last two decades (see Figure 1). As a result, the availability of micro administrative data for analytics is relatively recent in many countries. Public administration scholarship might have thus only recently come to
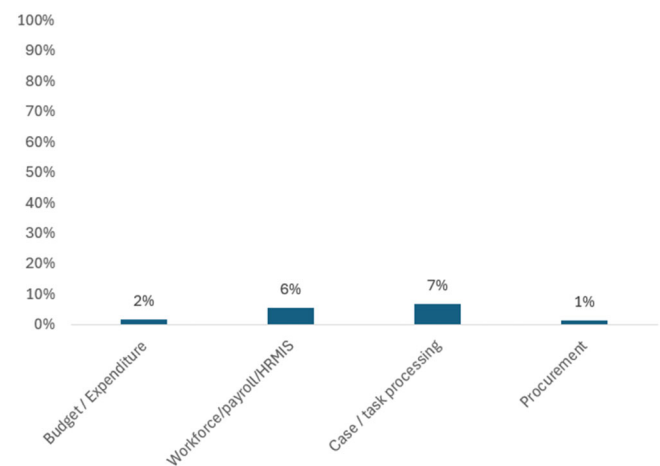
FIGURE 6 Administrative micro data sources used in quantitative public administration research (2013–2023).

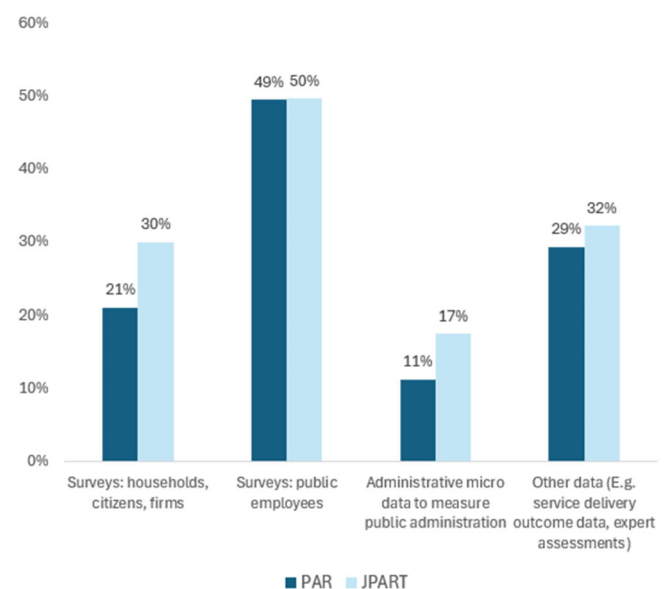**FIGURE 5** Data sources used in quantitative public administration research (2013–2023).

FIGURE 7 Data sources used in quantitative public administration research (2013–2023), by journal.

capitalize on these digital records. Assessing publications over time, however, does not suggest an increasing turn towards administrative micro data in public administration research. While, on a positive note, 2023 was the year with the greatest share of studies drawing on administrative micro data (23%), this peak is only marginally above a previous 2016 peak (20%) and not reflecting a clear trend in the years prior (e.g., the share in 2022 was 13%) (Figure 8). In other words, the relative inattention to administrative micro data sources relative to survey micro data sources in public administration research appears to persist over time.

DISCUSSION: THE GAP BETWEEN GOVERNMENT ANALYTICS POSSIBILITIES IN PRACTICE AND PUBLIC ADMINISTRATION SCHOLARSHIP

With the digitization of their administrative systems, governments around the world have gained access to a plethora of data about their own administrative operations. How governments leverage such data to improve their own administration will arguably be a key determinant of their effectiveness going forward. In this article, we drew on the Government Analytics Handbook to summarize a conceptual framework which helps governments and scholars understand holistically the range of potential data sources

to diagnose and improve all components of a public administration production function. We also noted that shortages in analytics skills and the lack of systematic practice across governments in analyzing such data are among the factors holding back a potential data revolution in the diagnosis and improvement of public administration (Rogger & Schuster, 2023).

In conjunction, these conclusions imply that scholars could have pride of place in a data revolution in governments. Public administration research has increasingly turned towards quantitative studies. Scholars in the discipline are thus well equipped to play a key role in showcasing to practitioners how to effectively analyze the range of administrative micro data sources now available to diagnose public administration, and in furthering evidence on effective public administration based on these administrative micro data sources.

Our review of 689 articles published in JPART and PAR in 2013–2023 suggests, however, that public administration scholarship has some way to go to fulfill this potential.

On the one hand, public administration research has real strengths in the analysis of survey data. Surveys of public servants account for 50% of coded articles and surveys of citizens, households, and firms for 25%. Survey research, of course, has a lot of value. It improves scholarly and practitioner understanding of key
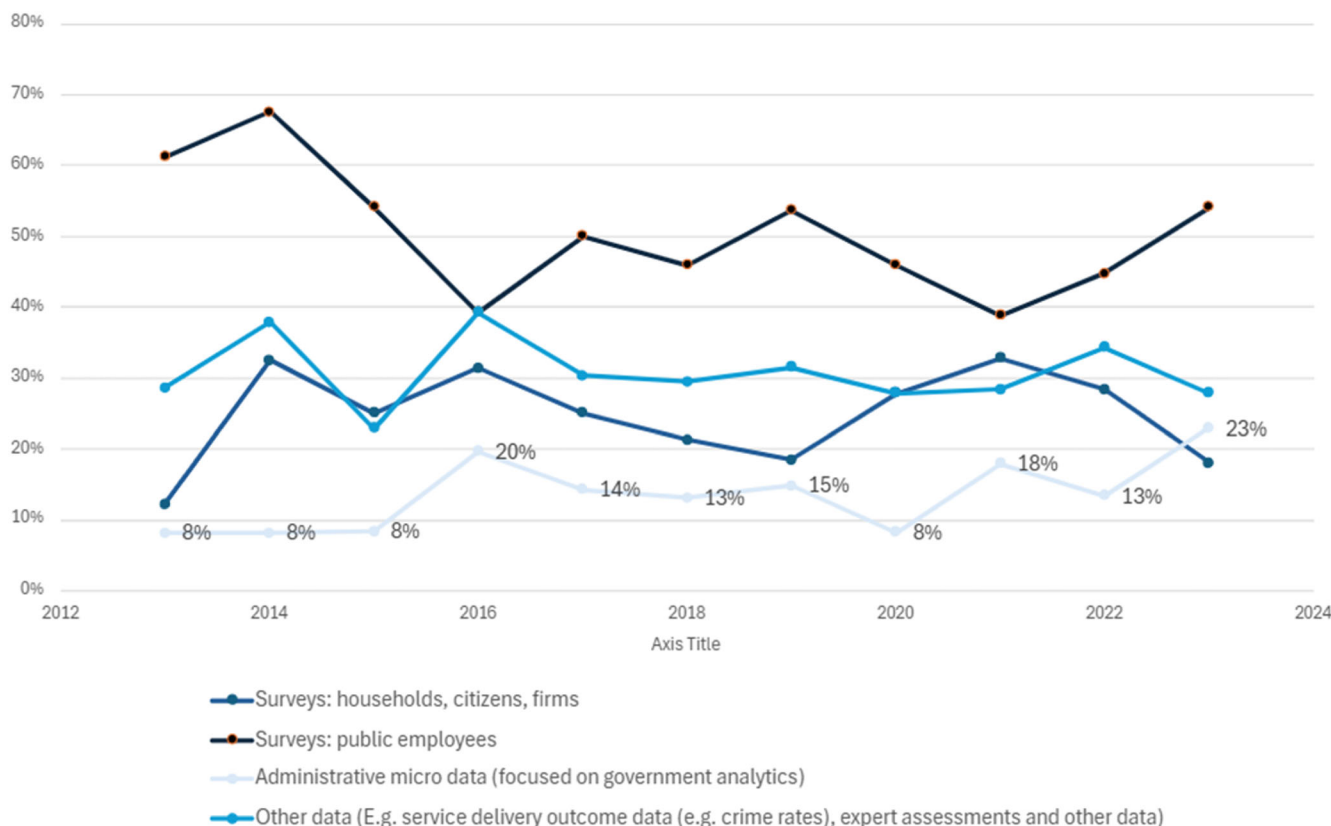

FIGURE 8 Data sources used in quantitative public administration research, from 2013 to 2023.

components of the public administration production function which matter for public sector productivity—for instance, the quality of management inside organizations, employee attitudes and behaviors, and the experience and behavior of service users, as well as their attitudes towards public administration organizations. Such research can also improve survey-based government analytics efforts of public sector organizations. For instance, Fernandez et al. (2015) provide key insights to improve the U.S. Federal Viewpoint Survey (FEVS) based on a research synthesis; Baig et al. (2021) discuss the Worldwide Bureaucracy Indicators, based on household survey data from 132 countries, which provide governments with an accessible tool to analyze public sector labor market dynamics in their country; and Schuster et al. (2023) introduce the Global Survey of Public Servants initiative, which has conducted government-wide surveys of public servants in 18 countries to improve measurement of public administration on a large scale across countries and organizations, and inform management improvements.

These important insights about survey-based approaches to government analytics stand in contrast to the relative neglect of other, micro administrative data-based sources to measure and improve public administration, which are highly complementary to survey-based measures. This constrains knowledge accumulation in public administration research: topics which are arguably important to understand remain relatively understudied. For instance, 1% of reviewed articles draw on procurement micro data. Yet, as noted, public procurement represents 12% of global GDP. Similarly, 1% of reviewed articles draw on micro payroll data from an (entire) organization or government. Yet, as noted, public payrolls represent almost 10% of global GDP. Much public administration scholarship thus misses out on the analyses of administrative micro data which is core to government analytics and arguably core to governmental efforts to improve their administrations.

This has implications for the utility of public administration scholarship to inform government analytics in public sector organizations, and evidence-based public administration reform more generally. It means that an area of practice in which public administration scholars could be at the forefront—government analytics using administrative micro data—is instead an area in which practitioners gain limited insights from public administration scholarship.

CONCLUSION: BROADENING THE DATA SOURCES IN PUBLIC ADMINISTRATION SCHOLARSHIP TO INFORM BETTER PRACTICE

Data analytics has significantly reshaped management and boosted productivity in private sector firms

(Brynjolfsson et al., 2021). A core challenge for government organizations is not to fall behind in this analytics revolution, but instead leverage it to enhance their own productivity. The digitization of government records implies that measurement in public administration can go much further than it could even a decade ago. The intention is hereby not to measure away the public manager. Even with digital records, many important aspects of public administration will remain unmeasurable. Rather than substituting for the knowledge of public managers and conversations about the public service, analytics are a strong complement to them.

In this article, we had argued that how governments leverage data to complement their tacit knowledge to improve their own administration—what we call government analytics—will be a key determinant of their effectiveness going forward. We also laid out a conceptual framework to help scholars and practitioners think holistically about the range of different data sources available to diagnose bottlenecks to greater public sector productivity. Lastly, we contrasted these data sources with what public administration scholars study. We found that public administration scholarship has real strengths in analyzing micro survey data but has largely neglected micro administrative data-based sources to measure and improve public administration.

Our article is thus most of all a call for greater cross-fertilization in government analytics between practitioners and scholars. As we detail in the "Government Analytics Handbook," governments are increasingly turning towards government analytics, yet are often held back by skills and knowledge gaps. Some of these gaps may be addressed in-house by governments—for instance by training public servants in government analytics and setting up analytics units inside government which institutionalize capacity for government analytics (Rogger & Schuster, 2023a).

Some of these knowledge gaps, however, may also be addressed through scholarly research. For that to occur more widely, however, public administration scholars need to start studying a broader range of administrative micro data about public administration. Ironically, scholars outside of public administration—in particular in economics and political science—increasingly study public administration using administrative micro data. Numerous recent publications in top journals in political science and economics feature such data (see, among many, Bandiera et al., 2021; Best et al., 2023; Brierley, 2021; Dahlström et al., 2021; Hassan et al., 2024).[10] These publications underscore the feasibility of high-quality research drawing on administrative micro data about the public administration—be that by accessing the increasing number of micro datasets (e.g., on procurement and public payrolls) in the public domain, or by partnering with governments on analytics projects of both practical and scholarly value.

Government analytics is thus not only an important opportunity for governments to extend the data revolution to the measurement and improvement of the core public administration. It is also an opportunity for public administration scholarship to widen the administrative micro data sources used in research and to shape government practice for the better.[11]

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ENDNOTES

[1] Naturally, exogenous factors beyond public administration—like the political system—influence public administration. Since government analytics is concerned with public administration organizations improving the measurement of their internal operations, these exogenous factors fall outside the scope of the conceptual approach presented in Figure 2.

[2] Our selection is limited in scope in that it disregards research published in books or book chapters (cf. Walker et al., 2014). Yet, articles are arguably the primary research outlet in public administration scholarship and, as such, our study—while not comprehensive in its coverage of public administration journals—should capture trends reflective of the data sources employed in the study of public administration.

[3] In other words, our review excludes qualitative research, meta-analyses, literature reviews, purely conceptual studies, practitioner takes, or book reviews.

[4] We compiled an Excel sheet with rows for each article, and columns identifying the name of the article, journal, year, volume, issue, link to the article, and the range of coding categories detailed in this section.

[5] Studies were only coded as "Other" if they were not related to either core public administration or frontline service delivery. To illustrate, a study on parliament and core public administration would be coded as "core public administration," whereas a study on parliaments and NGOs, or only NGOs or only courts, would be coded as "Other."

[6] The dividing line between "core public administration" and "frontline" is, of course, at times blurry. For instance, we coded studies on the Ministry of Health as "core public administration," but of hospitals as "frontline." Given this invariable blurriness, our analyses of different data sources used in public administration research is not disaggregated by "core public administration" vs. "frontline."

[7] For instance, if an article surveys teachers across schools and includes school expenditures as a control variable, it is coded to include both a survey of public employees and administrative data (budget and expenditure data).

[8] By way of example, studies of municipalities may include controls for total municipal expenditures or total number of municipal staff in regressions.

[9] As aforementioned, the sum of these percentages exceeds 100% as studies can draw on multiple data sources. Among the 612 articles, 60% of studies rely on a single data source. 40% combine multiple different data sources (e.g., employee survey and workforce data; or workforce and budget data).

[10] This conclusion about reliance on (subjective) survey measures over (more objective) administrative measures in public administration research as compared to economics is complementary to Olsen et al.'s (2022) conclusion that public administration relies more heavily than economics on observational (rather than experimental or quasi-experimental) approaches to causal identification.

[11] We encourage scholars and practitioners interested in this journey to deep dive into the "Government Analytics Handbook."

Dozens of chapters provide guidance and starting points on how to analyze different government analytics data sources—from procurement data to payroll data to case data, to name a few. The book can be accessed freely at worldbank.org/governmentanalytics.

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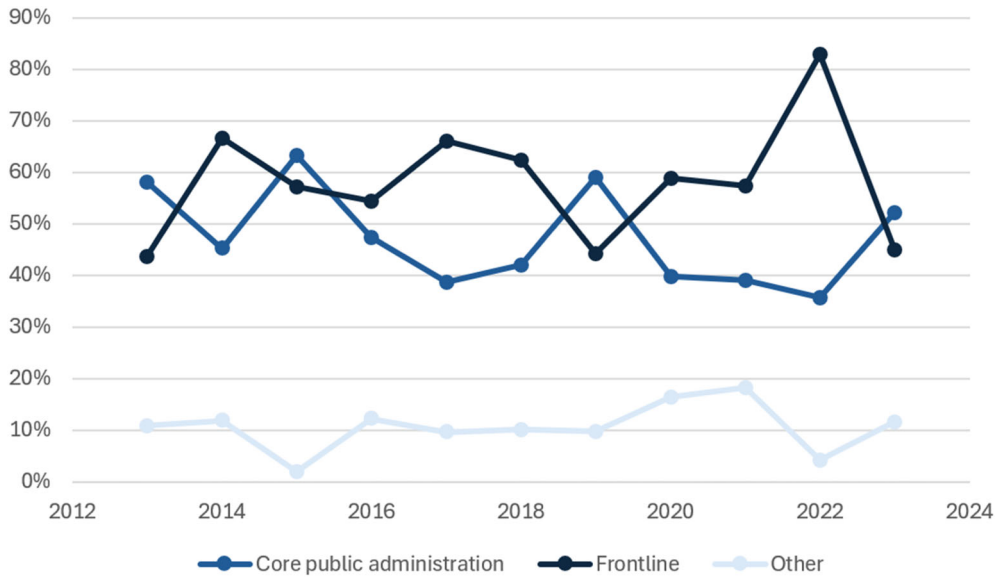
APPENDIX 1

FIGURE A1 Focus of quantitative public administration research (2013–2023).