



Chapter Ten

Using Linked Administrative Data to Advance Evidence-Based Policymaking

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INTRODUCTION

Government agencies are rich with administrative data related to who they serve and how they serve them, but the infrastructure is typically purpose-built for the specific needs of the agency. Despite these robust data sources, they are rarely central to decision-making processes because of data limitations and staff training or capacity.

A central constraint on a broader use of administrative data to inform policy is its siloed nature. Take, for example, a state Department of Education that maintains thousands of data points on the administration of its services and students served. While this department can produce the necessary metrics to understand what is happening to students in K-12 within the confines of their services, it would lack the ability to connect that information with data from supplemental sources. This inhibits the ability to learn more about what students experience outside of school, and beyond their K-12 education, to understand the impacts of the curricula and supports delivered during a student's time in school.

This chapter explores how to improve the use of existing administrative data based on a case study of a Statewide Longitudinal Data System (SLDS). SLDS can break down silos within government, facilitate shared governance, and answer research questions between state partners, while highlighting the benefits of data driven decision making. The use of SLDS data is transforming evidence-based policymaking, providing a model for how states and other governmental entities can better leverage administrative data for a broader set of purposes.

The use of SLDS data, leveraging advances in artificial intelligence and streamlined data governance, is transforming evidence-based policymaking, making each agency's existing data more powerful when connected to partners. Continued enhancements to the SLDS provide a model for how states and other governmental entities can better leverage administrative data for a broader set of purposes.

Leveraging the Increasing Availability of Administrative Data

The availability of administrative data in some countries has facilitated an abundance of important research that tracks public performance and improves service delivery. Some Nordic countries, such as Denmark, Sweden, Norway, and Finland, are decades into the development and use of their administrative data following the introduction of population-wide identifiers.¹

For example, in 2005, linked family and individual longitudinal administrative data allowed researchers in Denmark to conduct a study on the effects of parental education on their children's education.² Similar studies expand these types of analyses to health and labor market outcomes. Understanding such causal effects allows policymakers to target resources more efficiently and adjust implementation, while monitoring to ensure that public programs are working as intended.

Historically, there have been fewer such partnerships and data use in the United States—but the need remains.

Current Status and Opportunities of Statewide Longitudinal Data Systems

Linked administrative data, considered infeasible even just a decade ago, represents an enormous leap forward to policymakers who seek to demonstrate and maximize the effectiveness of public resources. For instance, a higher education agency collects data on postsecondary participation and outcomes. The agency can assess the effectiveness of certain financial aid or academic support programs on performance, retention, and completion of a postsecondary degree. However, many factors impact those outcomes beyond what is collected at institutions of higher education, such as details from K-12 education, participation in the labor force, food insecurity, or health concerns. Better access and use of those important features of a student's life, using longitudinal data already collected across multiple agencies, can help leaders make more informed and holistic policy to support their stakeholders.

The current Statewide Longitudinal Data Systems, administered by the U.S. Department of Education's (ED) National Center for Education Statistics, includes a guiding principle of the SLDS grant program that "better decisions require better information." Since the first round of grants in 2005, nearly all U.S. states and territories have received an SLDS grant from ED to develop, expand, or use linked administrative data. With this support, states have made significant progress from siloed agency data developing collaborative interagency partnerships and data sharing to build evidence-based policy.

New Jersey, for instance, received its first SLDS grant in 2012 to support the foundational work of legal agreements, governing practices, data sharing, and infrastructure. The state's second grant in 2019 enabled building on that progress to update infrastructure and interoperability, as well as

piloting initiatives for external data access. The state seeks to further its SLDS mission of enabling longitudinal data to improve governance efforts, policymaking, and the performance of public initiatives. The development of New Jersey's SLDS has allowed the state to replace previous manual data collection efforts on student financial aid program outcomes with an automated annual report that relies on cross-departmental data. Similarly, the state recently passed legislation requiring the use of the SLDS to develop an annual teacher workforce report, producing regular updates on potential shortages and nuanced trends that can inform policy strategies through the use of linked administrative data.

Continuing the example of a state's Department of Education, the SLDS system affords the opportunity to build on what the state knows about their students in the classroom and adds details about whether they are working while completing high school, in a household experiencing poverty, or at-risk of homelessness. Critically, these systems further allow for examination of what happens to their students after they leave high school—whether they attend postsecondary education or attend a vocational training program and, ultimately, their employment experiences.

Having this type of information and evidence strengthens service delivery in two primary ways. First, they can identify students who might be at risk of not completing high school earlier and connect them and their family with the supports they need. Second, they can use evidence of past student experience to determine the types of curricula, support, and programming that have the biggest impacts. For instance, data about remedial coursework in postsecondary can help secondary programs change approaches to improve preparedness for college or other training programs, and suggest which state programs had the biggest impact on student postsecondary to career success. Such data-based questions have typically not been addressed in a formal way, but by using SLDS systems, these questions can be both answered and routinely monitored to provide regular feedback to policymakers.

With a well-functioning SLDS, agencies can no longer operate in silos. They can lean on the infrastructure developed by ED, expand with similar grants from the U.S. Department of Labor, and prioritize state funding to get the information they need to best serve their constituents. Experience with these systems has demonstrated that this value is not limited to K-12 education, but expands into all public administration. Programs operate better, more efficiently, and more effectively when provided with real evidence on policy outcomes. Over time, these and similar investments in shared data systems could well pay for themselves by making public programs more efficient and effective.

Transforming Evidence-Based Policymaking Through Linked Data

The use of SLDS data, combined with the leveraging of advances in computing technology and streamlined data governance, is transforming evidence-based policymaking in multiple ways:

Facilitates shared governance. The development and use of an SLDS also facilitates shared governance by creating a forum for agencies to work together toward research questions that are a priority across agencies. This helps to build trust and strengthens partnerships among agencies, and ensures that data are used in an accurate, consistent, and ethical way with shared governance and input from the data owners in all data use. Ultimately, this type of collaboration leads to better decision making—all stakeholders at the table allows policy to be informed by a wider range of data and experts to better serve the public.

Enables real-time data analysis and streamlined reporting. In addition to the important evidence gleaned from these systems, the use of linked administrative data along with the infrastructure to maintain and use an SLDS develops the capacity to replace what may have previously been manual reporting. By implementing advanced computing power and incorporating valuable feedback from key stakeholders, the process of generating regular metrics has been transformed to render them almost instantly available. Gone are the days that required weeks or even months of work to develop reports; now, the power of an SLDS enables real-time data analysis and streamlined reporting.

Enhances productivity and evidence-based practices. Metrics are also expanded beyond what was previously required for federal reporting to strengthen insights into service delivery and outcomes. With less time spent on cumbersome reporting tasks, public employees can focus on using the evidence derived from the SLDS to improve existing services and develop new, innovative initiatives. This time-saving aspect not only enhances productivity but creates a dynamic environment where evidence-based practices sit at the forefront of decision-making processes.

Expanding the use of emerging technologies and analytics. The use of artificial intelligence and/or machine learning presents an exciting opportunity to effectively enhance the public sector's ability to use administrative data, although it is in its infancy for this purpose. Some success has occurred through the development of predictive analytics, allowing state agencies to compare current data to historic trends, determine potential risks for program participants, or assess broader policy implications. Using AI to promote warning systems that keep policymakers informed can also help to quickly and efficiently target resources to ensure successful outcomes.

By leveraging advanced analytics, time-saving artificial intelligence tools, and predictive modeling and/or warning systems, policymakers can proactively identify potential issues and trends, enabling them to take preemptive actions and design targeted interventions to address emerging challenges effectively. The development and implementation of progress benchmarks allows for continuous evaluation of the effectiveness of policies and programs. This feedback loop ensures that public services are continuously improved based on real-time data for more efficient and impactful outcomes.

Using Data as a Hub for Policy Innovation

The impact of these systems grows significantly as more agencies participate and data usage expands, making them hubs of innovation that enhance policymaking through predictive analytics, warning systems, and progress benchmarks. States that have recognized this potential by prioritizing sustainable funding and providing support for SLDS implementation continue to reap these benefits and will keep doing so in the future. Forward-thinking states can embrace these emerging systems and establish sustainable platforms for the next generation of public services.

Participation in a state's SLDS should extend to all relevant stakeholders, including state agencies that may not have been included in the initial development of education and earnings systems. More holistic participation in an SLDS allows for better evidence to understand individual experiences, barriers, and the policies that better support agencies. Building a multistakeholder approach will require agencies to collaborate, share data, and develop meaningful and sustainable partnerships. Through this collaboration, stakeholders can ensure that the data is used effectively to inform policy decisions and improve program outcomes.

Benefits of Using Shared Data Systems

Benefits of shared data systems are not limited to only those agencies that created them and it opens the opportunity for expanded public service across agencies. Mathematica's recent Education-to-Workforce Indicator Framework³ highlights types of questions that can be answered by linked administrative data. Among many others, these indicators include access to in-demand career training, access to health and social supports, school and workplace diversity, and economic mobility. New Jersey's Benefits of Education report used SLDS data to highlight the experiences of students in the state, as well as the return on investment of postsecondary education to

individuals and society.⁴ The development of robust state systems that can address these questions for their stakeholders will be critical to the future of education and career service delivery directly, with added understanding of effects from programs such as public health, nutrition programs, and more.

Use of an SLDS informs policymaking to improve outcomes. With an operational SLDS, system operators can automate reporting of important metrics to create feedback loops to improve policy. For instance, predictive analytics can help to identify students who are at risk of dropping out of school or not completing a degree on time, warning systems can notify policymakers of potential concerns with a particular program or policy, and benchmarks can help to track program outcomes over time and adjust implementation as needed. By developing a robust SLDS, the public sector gains the ability to make evidence-based decisions, resulting in more efficient policy implementation and effective outcomes for the people they serve.

LOOKING FORWARD

As more states embark on their development of SLDS, they encounter certain challenges that need to be addressed for optimal implementation.

- **Sharing experiences and insights.** Inclusive governance and sustainability have emerged as critical factors for the successful establishment of these systems. Collaborative meetings and events like the annual SLDS Best Practices Conference,⁵ organized by the ED for participating states, play a crucial role in sharing experiences and insights. During such gatherings, representatives discuss strategies to engage stakeholders effectively, create research agendas, build, and update necessary infrastructure, and disseminate results to inform policymaking.
- **Consistent and dedicated investment.** A continued challenge that many state systems face remains the need for consistent and dedicated funding. Despite receiving grants from ED for this purpose, many states find the process complex, demanding, and a strain on already limited resources. Sustaining the momentum and ensuring ongoing support becomes a vital concern for long-term success. Budget constraints and competing priorities pose challenges to making the significant investments necessary in building innovative and sustainable systems. Without dedicated funding, early investments to build a states' SLDS could stagnate, limiting their ability to reach their potential in informing policy and advancing current practices.

- **Building and maintaining trust.** In addition to funding challenges, other barriers influence the successful implementation of an SLDS. Building and maintaining trust among various agencies and stakeholders is essential for data sharing and collaboration. Establishing a robust governance framework that addresses these concerns while promoting transparency and accountability can foster trust and encourage data-sharing collaboration. New Jersey has moved toward this goal through a multistakeholder approach⁶ to data governance.
- **Raising awareness.** Furthermore, raising awareness about the benefits of an SLDS is vital among policymakers and the public. Educating stakeholders about the power of data-driven policymaking and how SLDS can facilitate evidence-based decisions will garner support for these initiatives and promote informed decision making across all levels of governance.
- **Ensuring sustained leadership support.** Additionally, ensuring sustained political support and leadership is crucial for the continuity and prioritization of SLDS efforts. By fostering a nonpartisan approach to data utilization in policymaking, states can ensure that SLDS initiatives remain stable and serve as a solid foundation for long-term governance, transcending political cycles and driving transformative changes in evidence-based policymaking.

The SLDS is a relatively new tool, but its potential to revolutionize government service delivery is tremendous. As these systems evolve, they become even more potent in improving the lives of citizens. To ensure the continued growth of SLDS, government must invest in their maintenance and long-term sustainability. This includes offering startup funds for states that haven't yet developed their SLDS and dedicating regular funding to maintain and enhance existing systems. To drive awareness and use of these systems, additional funding and initiatives should focus on informing the public and shaping policies based on SLDS data. Lessons learned from this experience can provide models for governments to build on in adapting current or developing new ways to capitalize on rich stores of available administrative data across multiple program areas.

To build on the potential of SLDS in developing policy for leveraging administrative data more generally, both the federal government and individual states must make strategic investments in maintaining and sustaining the extensive infrastructure that has already been developed. By proactively addressing these challenges and investing in the necessary resources, we can empower evidence-based policymaking and create a data-driven landscape that truly serves the needs of citizens and propels the public sector into a more effective and efficient future.

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Endnotes

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