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STATE HIGHER EDUCATION EXECUTIVE OFFICERS ASSOCIATION

DATA-INFORMED POLICY INNOVATIONS IN TENNESSEE

EFFECTIVE USE OF STATE DATA SYSTEMS

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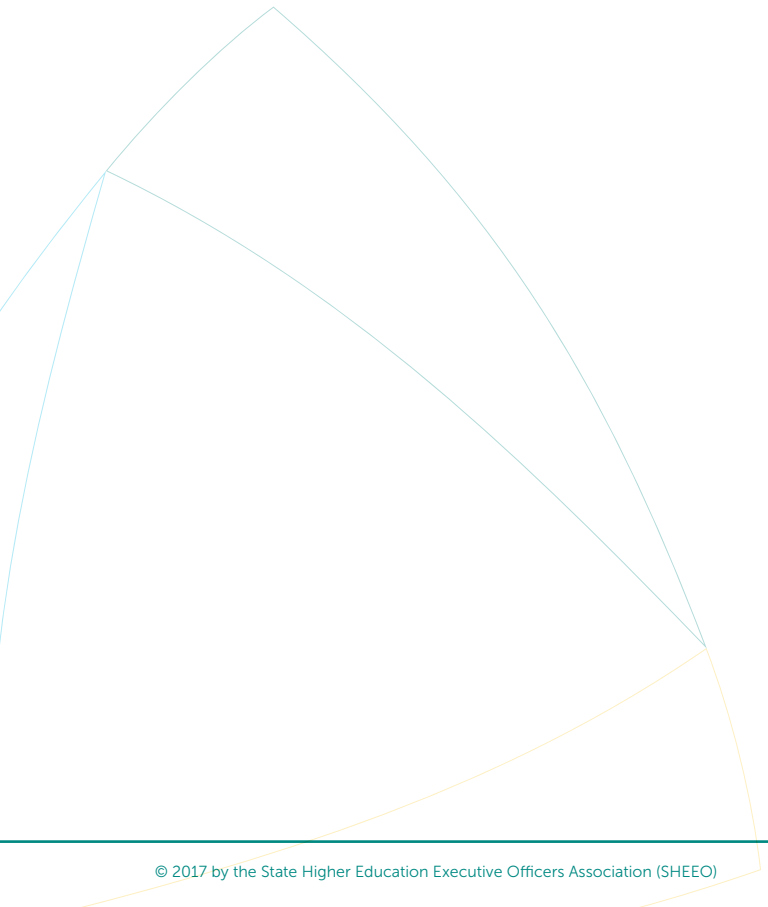

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Analysis of student-level data to inform policy and promote student success is a core function of executive higher education agencies. Postsecondary data systems have expanded their collection of data elements for use by policymakers, institutional staff and the general public. State coordinating and governing boards use these data systems for strategic planning, to allocate funding, establish performance metrics, evaluate academic programs, and inform students and their families. The State Higher Education Executive Officers association (SHEEO), as part of a project funded by the Bill & Melinda Gates Foundation (BMGF), surveyed state coordinating and governing boards on their collection and use of postsecondary student-level data. Following this, SHEEO identified seven states whose survey responses indicated an exemplary use of data in specific subject areas. In-person interviews were conducted by SHEEO agency staff in seven states selected for follow-up. In 2015, SHEEO visited the Tennessee Higher Education Commission (THEC) to discuss their efforts to support policy innovation with data and information resources.

The Tennessee Higher Education Commission, established by the Tennessee legislature in 1967, coordinates higher education activities for the state's two systems of higher education, the University of Tennessee (UT) system and the Tennessee Board of Regents (TBR). The UT system includes five campuses and two statewide institutes; TBR governs six universities, 13 community colleges, and 27 colleges of applied technology (TCATs). THEC's primary responsibilities include establishing public policy priorities, developing a strategic plan, determining funding mechanisms, and sustaining data and information resources for higher education in the state.[1]

Since 2009, the completion agenda has been a prominent theme in public policy for higher education. In that year, both President Obama and Lumina Foundation established ambitious national goals for increasing the proportion of adults with college credentials by 2025. Since then, at least 35 states have established goals of their own. These goals are predicated on the belief that increasing college attainment rates within the states will lead to improved economic conditions. In many states, new funding mechanisms, accountability metrics, and public awareness campaigns were adopted to promote the completion agenda. Lumina Foundation was influential in many of these state efforts. Tennessee was an early adopter; in 2009, Lumina provided funding for a policy review that provided the basis for the landmark reform legislation that followed.[2]

Tennessee exhibits a serious public policy commitment to the completion agenda. Over the past several years, the state has become widely recognized as a principal innovator in public policy for higher education, and THEC, the agency charged with developing and enacting those policies, is frequently cited as a leader among its peer agencies. Reports and articles note that "no state has done more" to shift resources to outcomes-based funding[3], that the state is "at the vanguard" of college attainment efforts, and is "grabbing the spotlight in higher education policy."[4] This leadership status is the result of a series of innovations made possible in part by the robust data system built and maintained by THEC. In Tennessee, data provides a foundation for policy innovation.

1. Tennessee Higher Education Commission Policy Manual. *https://www.tn.gov/assets/entities/thec/attachments/THEC_Policy_Manual_revised_July_27,_2017.pdf*
   As of the writing of this report, governance changes are underway that will remove the six universities from TBR control and establish independent boards for each. See Adam Tamburin, "Gov. Bill Haslam signs transformative college overhaul," *The Tennessean*, June 8, 2016, retrieved from *http://www.tennessean.com/story/news/education/2016/06/08/gov-bill-haslam-signs-transformative-college-overhaul/85604390/* and *https://www.tbr.edu/focus/focus-implementation-timeline*.
   The six locally-governed universities will still be required to submit data to THEC.
2. David L. Wright, "Structuring State Policy for Student Success: Applying Incentives in the Volunteer State," Lumina, March 2016, p 2. *https://www.luminafoundation.org/files/resources/structuring-state-policy-1.pdf*
3. Nate Johnson and Takeshi Yanagiura, "Early Results of Outcomes-Based Funding in Tennessee." Lumina. March 2016. *https://www.luminafoundation.org/files/resources/early-results-tn-0314-1.pdf*
4. Paul Fain, "Bill Haslam's free community college plan and how Tennessee is grabbing the spotlight in higher education policy." *Inside Higher Ed.* August 26, 2014. Retrieved from *https://www.insidehighered.com/news/2014/08/26/bill-haslams-free-community-college-plan-and-how-tennessee-grabbing-spotlight-higher*

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Tennessee's current era of higher education reform began with the passage of the Complete College Tennessee Act of 2010 (CCTA). Spearheaded by former governor Phil Bredesen, the act outlined an ambitious array of reforms intended to bring educational attainment in Tennessee to the national average by 2025. The act:

- Established the State Master Plan for Higher Education, which articulates a public agenda for higher education in the state that emphasizes the connection between educational attainment and a more highly-qualified workforce in Tennessee.
- Shifted the entirety of the state's funding allocation for public higher education from an enrollment-based formula to an outcomes- or performance-based funding system.
- Revised transfer and articulation policies to ease transfer between two- and four-year institutions.
- Reformed the delivery of developmental education by limiting it to community colleges[5]

The act mandated a prominent role for THEC in the development of these reforms. The agency was charged with holding institutions accountable for the reforms in the public agenda, regularly updating the Master Plan, and devising the funding formula.

Tennessee Governor Bill Haslam, who took office in 2011, extended the state's focus on educational attainment with his "Drive to 55" initiative. The Drive to 55 moniker references the central goal of the strategic agenda: increasing the percentage of adults in Tennessee with a postsecondary credential from its current rate (approximately 38 percent in 2015) to 55 percent by 2025.[6] Haslam views the array of policy innovations under the Drive to 55 umbrella not as simply education reform, but as central to economic development in the state.[7] As Russ Deaton, then-acting head of THEC stated, "Drive to 55 is not a higher education only agenda. It is a state agenda." Drive to 55 encompasses:

- Tennessee Promise. Tennessee took another significant reform step in 2014 with the passage of the Tennessee Promise Scholarship Act. Beginning in fall 2015, recent graduates of Tennessee high schools are not required to pay tuition or fees to attend a community college or TCAT within the state. To maintain eligibility for the scholarship, Tennessee Promise participants are required to meet with community mentors, file and renew the FAFSA, perform community service, and maintain a minimum GPA.[8]
- Tennessee Reconnect. Tennessee Reconnect is a scholarship program and an array of student support services for independent adults over age 25 who previously attended college without receiving a credential, or who never attended college. This program also supports enrollment at community colleges or TCATs[9]

5. See *https://www.tn.gov/thec/topic/complete-college-tn-act*
6. Emily House, James Snider, and David L. Wendell Wright, "Tuition-Free Community College in Tennessee." Presentation, SHEEO Higher Education Policy Conference, Newport Beach, CA, August 6, 2015. *http://www.sheeo.org/calendar/events/2015-sheeo-higher-education-policy-conference%E2%80%94newport-beach-california*
7. Fain, "Bill Haslam's free community college plan and how Tennessee is grabbing the spotlight in higher education policy."
8. See *http://tnpromise.gov/about.shtml*. Tennessee Promise functions as a last-dollar scholarship—the state does not provide funding for a student until all other forms of aid have been applied. In effect, community college was already "free" for many students, including those who receive a Federal Pell Grant.
9. *http://www.tennessee.gov/thec/article/tn-reconnect*

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- Tennessee LEAP. The Labor Education Alignment Program further underscores the connection between the Drive to 55 and the workforce. LEAP seeks to foster alignment between employer needs and training programs at TCATs and community colleges through a competitive grant process.[10]

Undoubtedly, many factors contributed to Tennessee's ability to implement such a wide array of reforms. The importance of the political context should not be understated. Tennessee has benefited from the continuity of two governors—of differing political parties—who prioritized higher education, innovative approaches, and the connection between higher education and jobs. THEC staff also noted the advantages of the state's moderately-sized population and centralized location. Yet the existence of a robust and adaptable state data system, and a staff committed to utilizing it, played an integral role.

THEC has maintained a student unit record database since 1991; the current Tennessee Higher Education Commission Student Information System (THEC SIS) was established in 2004. Earlier iterations of the system were not nearly as extensive as THEC SIS, nor did they function as tools for policy innovation. David Wright, Chief Policy Officer at THEC, describes two "quantum leaps" that brought the data system to its current status.

The first of these, the "data quantity quantum leap," resulted from the establishment of the Tennessee Education Lottery Scholarship Program. The legislation that established Tennessee's HOPE (Helping Outstanding Pupils Educationally) Scholarship directed THEC to "...provide assistance to the general assembly and to the Tennessee Student Assistance Corporation (TSAC) by researching and analyzing data concerning the scholarship and grant programs . . . including, but not limited to, student success and scholarship retention."[11] This broad charge allowed THEC to significantly expand the number and type of data elements collected from the UT and TBR systems, and prompted private institutions in the state to provide limited information to the THEC SIS as a condition of participation in the scholarship program. In addition to expanding the quantity of data collected, the legislative mandate spurred THEC to revamp the data infrastructure of the student unit record system. Prior to 2004, participating systems and institutions submitted flat files to an information system housed on a SAS platform. After the passage of the lottery scholarship legislation, the system was rebuilt as a SQL server relational database. The method of gathering data from the state's two systems of higher education was also updated, moving to an online data collection and verification system.[12] Examples of THEC's detailed lottery scholarship program reports may be found on the THEC website.[13] In addition to describing the number of participants and total scholarship dollars distributed, the reports provide retention, scholarship renewal, and graduation rates for scholarship recipients, disaggregated by gender, race/ethnicity, family income, and academic preparation. The changes to THEC SIS—and the legislation that made them possible—provided the data foundation for the policy innovations that followed.

The second quantum leap, the "data quality quantum leap," resulted from one of the most visible policy innovations in Tennessee, the establishment of a new outcomes-based funding (OBF) formula mandated by the CCTA in 2010. THEC staff stressed that the successful development of the funding formula was in part dependent upon the work undertaken to improve THEC SIS in the preceding decade. "One of

10. *https://www.tn.gov/thec/topic/leap*
11. THEC, "Tennessee Education Lottery Scholarship Program Annual Report: Recipient Outcomes through Fall 2015," retrieved from *https://www.tn.gov/assets/entities/thec/attachments/2016_TELS_Fact_Book.pdf*.
12. National Center for Higher Education Management Systems, "C2SP Student Unit Record Survey Report: Tennessee," retrieved from *http://www.nchems.org/wp-content/uploads/sur-tennessee.pdf*
13. See, for example, THEC, "Tennessee Education Lottery Scholarship Program Annual Report," at *https://www.tn.gov/assets/entities/thec/attachments/2016_TELS_Fact_Book.pdf*

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the main reasons Tennessee was able to institute an outcomes-based funding formula in 2010," stated Crystal Collins, Director of Fiscal Policy Analysis, "is because we had such a robust data system and had for a long time." Theoretically, of course, a state could establish a new reporting system—or significantly expand an existing one—as part of the process of developing an OBF model. For THEC, however, there was a clear advantage in not "operating out of a black hole." The funding formula that was ultimately implemented included only data elements for which THEC SIS contained three to five years' worth of trend data. The underlying stability in the data afforded THEC a degree of certainty in how the "data would behave" in the future, and increased the agency's confidence in the various iterations of the funding formula as they were developed.

THEC staff have acknowledged the important role robust data systems play in policy innovation in Tennessee and in other states. In his 2016 article, "Structuring State Policy for Student Success," David Wright discusses the conditions that currently exist in states to support the development of OBF models, differentiating them from the conditions in place when OBF formulas were tried in the 1990s. New types of models are necessary, he writes, because "state student-unit record data systems are exponentially more comprehensive, nimble, and enlightening."[14]

Once the OBF formula was implemented, and institutions' funding allocations were dependent upon the accurate calculation of metrics using data housed within THEC SIS, THEC staff observed the second quantum leap. Data quality improved when systems and institutions had a clear vested interest in improving it. THEC staff recounted an exchange with a Tennessee institution that exemplified this effect. In reviewing the files provided by THEC to confirm a graduation rate calculation used in the OBF formula, the institution identified seventeen students that had (according to institutional records) graduated, but had not been included in the rate calculated by THEC. Prior to the implementation of OBF, a mismatch of a small number of students might not have received much scrutiny. Source data in transactional data systems changes frequently, and a certain level of data "noise" might not be considered an issue significant enough to justify the use of resources necessary to resolve the discrepancy. After the implementation of OBF, however, the inability to resolve the identity of those seventeen students would have meant a loss of funding for the institution, and they worked extensively with THEC staff to resolve the issue. THEC staff indicated that while they had long had confidence in the quality of information submitted to THEC SIS, since the implementation of OBF "it's definitely getting better and it helps to have money attached to it because institutions do take an interest."

In addition to the two "leaps" facilitated by gubernatorial and legislative actions, THEC's ability to support policy innovation with data resources can be attributed to aspects of its organizational culture. These include a commitment to openness and transparency, an emphasis on cross-agency collaboration, and a cautious and consensus building approach to improving their data system.

THEC researchers and policy leaders demonstrate a commitment to openness, transparency, and to maintaining the agency's data neutrality. Staff repeatedly made comments like "data is better when it's public" and "data need to be set free," and their agency practices reflect a conviction that data quality improves with use. For example, spreadsheets containing the calculations used to determine institutional funding levels in the OBF formula are posted on THEC's website for easy public access[15].

14. Wright, "Structuring State Policy for Student Success: Applying Incentives in the Volunteer State," 16.
15. *https://www.tn.gov/thec/article/2015-20-funding-formula*

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THEC staff noted the importance of SHEEO agencies being perceived as "independent arbiters of information." THEC and other SHEEO agencies operate at the nexus of a number of stakeholder groups. In order to successfully promote a public agenda, they need to be perceived as reliable and neutral sources of information by the institutions, systems, and legislators in their states. At the same time, THEC staff are cognizant that they operate in a political environment. Not surprisingly, given the flurry of reform activity in the state, THEC researchers reflected on the importance of their relationships with gubernatorial and legislative staff. Researchers at SHEEO agencies must be "nimble," and able to negotiate "the academic, policy, and political worlds," according to Emily House, then Assistant Executive Director of Policy, Planning and Research.

Multiple THEC staff mentioned the necessity of cross-agency data sharing, of "breaking down data silos and working with other agencies" to evaluate the success of various reforms. The most important of these partnerships is arguably THEC's relationship with the Tennessee Longitudinal Data System (TLDS). TLDS functions as the P-20W data warehouse for the state of Tennessee, and links data from the Tennessee Departments of Education and Labor and other agencies with THEC data. TLDS is housed at the Boyd Center for Business & Economic Research at the University of Tennessee, Knoxville. Staff from TLDS participated in SHEEO's fall 2015 interview sessions at the THEC offices.[16]

Tennessee's Master Plan for Postsecondary Education requires THEC to produce annual progress reports on various Drive to 55 efforts, including "fuller alignment between . . . the supply of postsecondary educated and trained human capital in Tennessee and the employers and state agencies that represent the workforce and economic development demands of the state."[17] THEC's ability to do so is predicated on a partnership with TLDS, which holds data from the state's unemployment insurance system, including employment and wage records. Such partnerships require formal data-sharing agreements and data-governance structures, and these are in place in Tennessee. However, the success of the partnership also relies, as Tammy Lemon, Director of the TLDS, emphasized, on "developing trust relationships and a desire to share data." In interviews, staff from THEC and TLDS exhibited a shared commitment to the Drive to 55 goals and a high level of cooperation between the two agencies. This atmosphere of cooperation facilitates efficient information-sharing in Tennessee to support and evaluate reform efforts. TLDS, in cooperation with THEC, has undertaken the task of developing progress reports to measure the state's progress against Drive to 55 goals. TLDS's efforts are reflective of the conceptualization of Drive to 55 as a "state agenda." Participating in measuring outcomes additionally benefits TLDS by linking the efforts of the agency to the public agenda, thereby underlining the need for the TLDS system and helping it secure ongoing funding from the legislature.

The importance of consensus building and an atmosphere of trust were also evident in interviews at the THEC offices with representatives from the Tennessee Independent Colleges and Universities Association (TICUA).[18] As private entities, TICUA members are not required to participate in Drive to 55 initiatives, but the organization and many of its constituent institutions have undertaken voluntary efforts to support Tennessee's public agenda. Many TICUA institutions are adult-serving, and approximately half of TICUA's 34 member institutions participate in Tennessee Reconnect. At the time of the SHEEO interviews, 13 TICUA institutions had voluntarily agreed to submit data to the TLDS to be able to measure the outcomes of

16. For information about the distinctions between systems like TLDS and those like THEC SIS, housed within SHEEO agencies, see John Armstrong and Christina Whitfield, "The State of Postsecondary Data Systems: Strong Foundations 2016," SHEEO, May 2016. *http://www.sheeo.org/resources/publications/strong-foundations-2016*

17. THEC, "Postsecondary Attainment in the Decade of Decision: The Master Plan for Tennessee Postsecondary Education, 2015-2025," 32. Retrieved from: *https://www.tn.gov/assets/entities/thec/attachments/MasterPlan2025.pdf*

18. For more information about TICUA, see *http://www.ticua.org*.

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their students more broadly. The primary draw for participation in the project is the ability of participating institutions to access systematic information about employment outcomes for their alumni. Patrick Meldrim, Vice President of TICUA, remarked that conversations with institutions regarding participation with THEC and TLDS data initiatives turned not on the utility of the information, but on assurances about how the involved agencies would demonstrate "care and concern around the data" and treat it responsibly. Relatively few state data systems include information regarding private institutions; Tennessee's success in encouraging voluntary participation is a measure of their success in promoting a cautious approach to data sharing and of Drive to 55 as a statewide policy agenda.[19]

The interplay between data, policy development, and research is clear in the ongoing development of another high profile reform, the Tennessee Promise program. According to House, "Tennessee Promise was a political initiative, but lots of data was needed to project its impact." Before the supporting legislation was finalized, THEC staff modeled changes in the college-going rate and the distribution of enrollment across postsecondary sectors, and estimated the average award amount given to students. In a sense, data drove policy during this phase, as the governor and the legislature used these projections to understand the potential financial and implementation implications of the proposed reform (similarly, data in THEC was used to identify students who might benefit from the Reconnect program). After implementation, THEC staff used existing data resources within THEC SIS to describe the effects of the program and gauge the accuracy of their models. Given the early stage of implementation and the parameters of existing data, most of the analyses to date have been descriptive.[20] At the time of the SHEEO interviews, House and other THEC staff were contemplating what additional data elements would be necessary to collect within THEC SIS to facilitate ongoing evaluation of the program, including markers to indicate current and former Promise students in longitudinal data sets and information about various mentoring activities for students. In this phase, the relationship between data and policy is reversed, as a policy innovation necessitates changes to data collection.

The ultimate proof of the success of Tennessee's data-informed policy innovations, of course, will be whether they accomplish their intended aims. Attainment rates, like all population statistics, move slowly, but the State of Tennessee can point to progress on a number of interim indicators. Graduation rates have improved, more credentials have been awarded to low-income students, and community college enrollment has risen. Other promising signs include:

- Degree and credential production—a central aim of the OBF formula—has increased for bachelor's and associate degrees, and, most sharply, for certificates. Because of the time lag in nationally-comparable data, it is not yet clear whether those increases differ from those in states without outcomes-based funding.[21]

19. 18 state data systems collect information from some or all private not-for-profit institutions. Armstrong and Whitfield, "The State of Postsecondary Data Systems: Strong Foundations 2016."

20. For example, see Emily House and James Snider, "Tennessee Promise: Years 1 and 2 Update," SHEEO Higher Education Policy Conference, Pittsburgh, PA, August 2016. *http://www.sheeo.org/calendar/events/2016-sheeo-policy-conference%E2%80%94pittsburgh-pennsylvania*

21. Johnson and Yanagiura, "Early Results of Outcomes-Based Funding in Tennessee." See also M. Kate Callahan, et al, "Implementation and Impact of Outcomes-Based Funding in Tennessee." Research for Action, February 2017.

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- An ethnographic study of four Tennessee campuses funded by the Ford Foundation concluded that OBF and the Complete College Tennessee Act changed institutional practice and yielded "robust campus-level completion activity."[22]
- In fall 2015 (the first year of Tennessee Promise implementation), the college-going rate for recent high school graduates in Tennessee was 62.5 percent, an increase of 4.6 percentage points (or approximately 4,000 new entrants into the system) over the prior fall. Perhaps more importantly, the fall-to-fall retention rate for this larger cohort was slightly higher than the retention rate for non-Promise students.[23]

THEC staff are encouraged by improvements in key metrics, but are reluctant to claim causality during these early stages of implementation, and acknowledge that the current rates of change are insufficient if Tennessee is to meet its Drive to 55 goals.[24] Both Deaton and Wright noted that the "cultural change" these reforms have spurred in the state—a change that has yielded an intense focus on the completion agenda and widespread support for data-informed policy innovations—may be more important than the pace of improvement.

The State of Tennessee has gained much attention over the last decade for innovative higher education policy. These reforms are made possible by a combination of gubernatorial leadership, policy development from the legislature and THEC, and by the presence and development of a robust data infrastructure within the state's SHEEO agency. The interplay between data and policy in Tennessee has facilitated improved data quantity and quality within THEC SIS. THEC's cautious and consensus-building approach to data collection has fostered an atmosphere of cooperation and data sharing with partner agencies. The resulting data resources have, in turn, been used to inform policy development and evaluate reforms.

22. Erik C. Ness, Mary M. Deupree, and Denisa Gándara, "Campus Responses to Outcomes-Based Funding in Tennessee: Robust, Aligned, and Contested." Ford Foundation, November 2015, 4. Retrieved from *https://www.tn.gov/assets/entities/thec/attachments/FordFoundationPaper.pdf*
23. House and Snider, "Tennessee Promise: Years 1 and 2 Update." See also Ashley A. Smith, "Promise program sharply lifts Tennessee college freshman enrollment," *Inside Higher Ed*, November 24, 2015. Retrieved from: *https://www.insidehighered.com/news/2015/11/24/promise-program-sharply-lifts-tennessee-college-freshman-enrollment*
24. Wright, "Structuring State Policy for Student Success: Applying Incentives in the Volunteer State," 19.

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