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Examining the Influence of Texas' Strategic Plan for Increasing University Research: Loose Coupling and Research Production at Regional Public Universities

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ABSTRACT

States have adopted a variety of policies to encourage universities to expand research production, with the hope of supporting economic growth and competitiveness. This paper considers whether a state-level initiative succeeded in influencing university-based research outputs among regional public universities. We test whether the Texas Research Incentive Program increased research production at a set of state universities as measured by total research spending, federally-funded research spending, the number of scholarly publications, and the share of publications published in high impact factor journals. Using a novel dataset and difference-in-differences analytic strategy, we found that TRIP adoption was associated with a 19%-25% increase in research expenditures at emerging research universities in Texas relative to a matched set of comparable universities. However, TRIP did not influence federally-funded research expenditures or journal publication outputs. We also show that federally-funded research expenditures influence publication outputs — both in amount and quality — and that number of full-time faculty influences both federal research expenditures and publication outputs. We discuss contributions to the literature on regional public universities, loose coupling, and research production, as well as implications for policy.

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In 2020, the U.S. National Science Board (NSB) called on state governments to support STEM+ research by increasing investment in public higher education. As China surpasses U.S. research and development spending, the NSB argued that states can help cultivate a science and engineering ecosystem by coordinating efforts among state universities, the private sector, and the federal government (U.S. National Science Board [NSB], 2020). These efforts would expand on states' historic approaches to encouraging university research, which focused on making states economically competitive or recouping public investment in higher education by monetizing university research (Geiger & Sá, 2008). Even

though states can play a significant role in research policy, relatively few studies have empirically examined state policies affecting university research.

Some states seek to expand university research production by encouraging regional public universities (RPUs) to become more like state flagship research universities. RPUs vary substantially, with some focusing almost exclusively on undergraduate education, while others award doctorates in multiple fields and have high research outputs. Despite their diversity, RPUs are united by a general orientation toward serving the economic, social, and educational needs of a particular geographic region, rather than focusing on national, or international prestige (Orphan, 2020; Orphan & Miller, 2020). However, state policies and funding schemes, such as performance-based funding formulas, can incentivize RPUs to become more selective or seek prestige in ways that detract from their historic missions (Orphan, 2020).

The Texas Research Incentive Program (TRIP) is an initiative to expand the state's research capacity by encouraging a selected group of public universities, which are historically RPUs, to "strive for prestige by becoming 'Tier One' research universities" (Orphan, 2020, p. 12; see also Crisp et al., 2010; Doran, 2015). Prior research indicates that TRIP universities received more donations when the state offered to match large private sector gifts that supported research initiatives (Hu et al., 2021). Despite TRIP's success at securing funding to support research (broadly defined), it is unclear whether Texas achieved its ultimate goal of helping RPUs increase research production along indicators such as federal research expenditures and the number or quality of scholarly publications.

In the next section, we orient the reader to the policy context for studying the potential effects of Texas' policy to support RPUs in expanding research production. After that, we review prior literature on RPUs and policies that aim to stimulate university-based research. Then, we conceptually frame our study by drawing on Weick's (1976) work that considers ways that processes within educational organizations can be loosely coupled so that a state policy change may only lead to limited changes in research outputs. Next, we describe the study data, methods, and findings. In the final sections of the paper, we summarize our results and offer implications theory, policy, and research.

Policy context

Compared to other states, Texas ranks third — following California and New York — in total university research expenditures. It also ranks sixth in federal research expenditures, behind California, New York, Maryland, Pennsylvania, and Massachusetts. The state's research output is led by The University of Texas at Austin and Texas A&M University at College Station (Texas Higher Education Coordinating Board [THECB], 2018, 2020). Texas classifies its two universities with the highest research profiles as "national research universities," a designation the state reserves for public universities