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Great expectations: assessing the impact of commercialization-focused policies among Malaysia's public research institutes

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ABSTRACT

In 2006, the Malaysian government released its 9th five-year development plan which, among other things, directed the country's numerous public research institutes (PRIs) to focus primarily on commercializing technologies stemming from their respective research agendas. This directive envisioned a de facto division of labor between universities, that would emphasize basic research, and PRIs, that would become Malaysia's translational research and technology commercialization hubs. Employing a scientific and technical human capital conceptual lens, this paper assesses the extent to which PRIs have met the expectations of the new commercialization directive through the analysis of data collected during a 2011–2012 survey among university and PRI researchers. First, we find descriptively that, in comparison to university researchers, PRI researchers do not differ substantially in terms of average patents and prototypes produced, our proxies for technology commercialization. Second, we investigate factors among PRI researchers that explain commercialization behavior and find that holding a PhD correlates strongly with publication and patenting behavior while conducting applied research and expressing adequate commercialization support correlates modestly with prototyping behavior. Implications for research and policy are discussed.

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1. Introduction

Policymakers in Malaysia have long recognized the role of science and technology (S&T) in furthering economic growth and development through innovation, reflected in the country's five-year national development plans. At least since 1986, these plans have emphasized and sought to increase national research and development (R&D), increase the number of researchers working in Malaysia, and establish institutions and infrastructure that will support the development of research capacities. Specifically, gross expenditure on R&D increased from 0.5% of GDP in 2000 to more than 1.13% of GDP in 2012, and the number of researchers increased from 19,021 in 2006 to 75,257 in 2012 (MASTIC 2013; Rasiah and Chandran 2015).

The precipitous increase in research has been carried out by Malaysia's research universities and its public research institutes (PRIs), both funded primarily by the Malaysian government. Most PRIs – the focus of this paper – were established over the past 100 years (see Table 1) to provide research support to Malaysia's public mission agencies. Specifically, PRIs were established to investigate

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