

UNDERSTANDING DECLINING BUSINESS SECTOR R&D INVESTMENT IN SOUTH AFRICA: IMPLICATIONS FOR INDUSTRIAL POLICY

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the dtic

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TIPS FORUM 2023

Industrial Policy in an era of global structural change: Implications for Southern Africa

Introduction

- Business sector R&D investment increases productivity and export pay offs
- There is a significant positive relationship between business sector R&D investment and productivity
- Public sector R&D investment encourages business sector R&D investment
- Compared to equipment and structures investment, business sector R&D investment offers seven times rate of return at the national level

Research aim

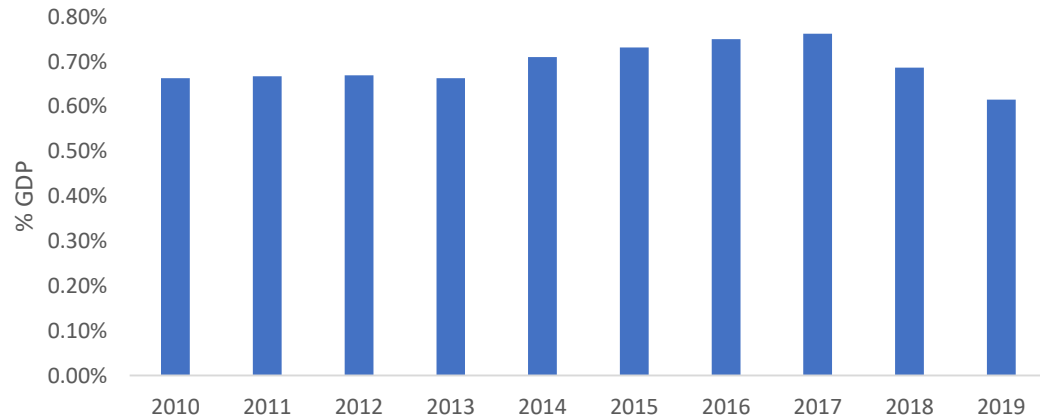
- South Africa has experienced a decline in business sector R&D investment
- The research aim is to understand the declining business sector R&D investment

Research methodology

- R&D investment data from CESTII and domestic patents data from WIPO since 2010.

Results & discussion

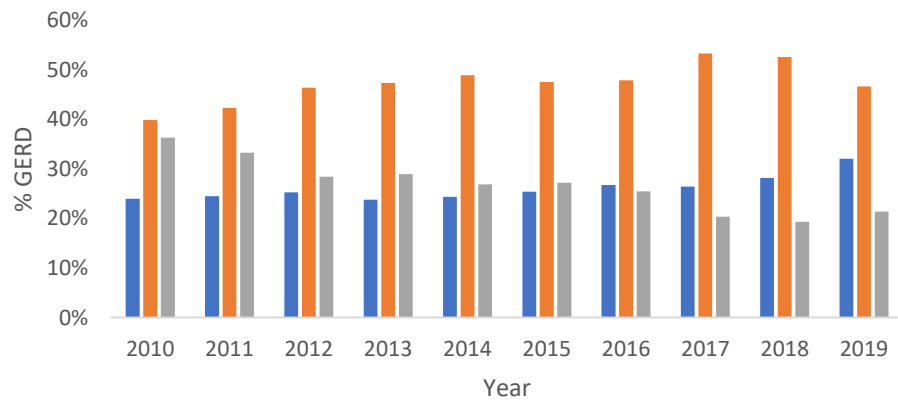
GERD



R&D investment source

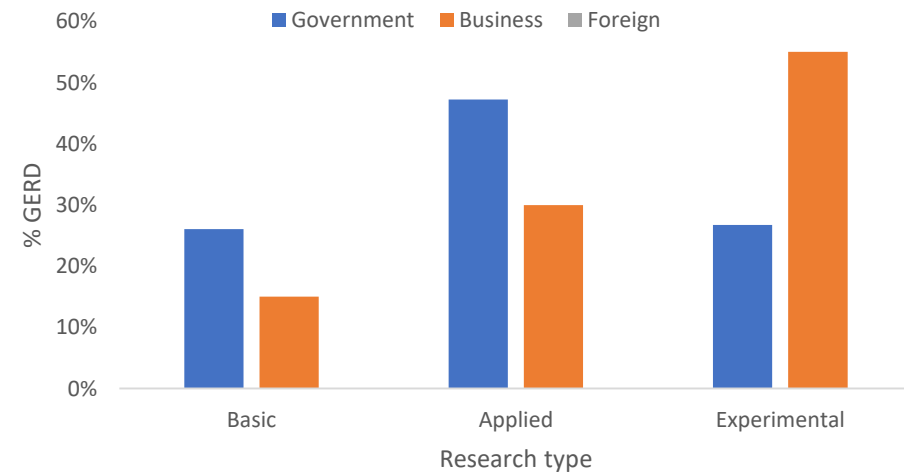


R&D investment by research type



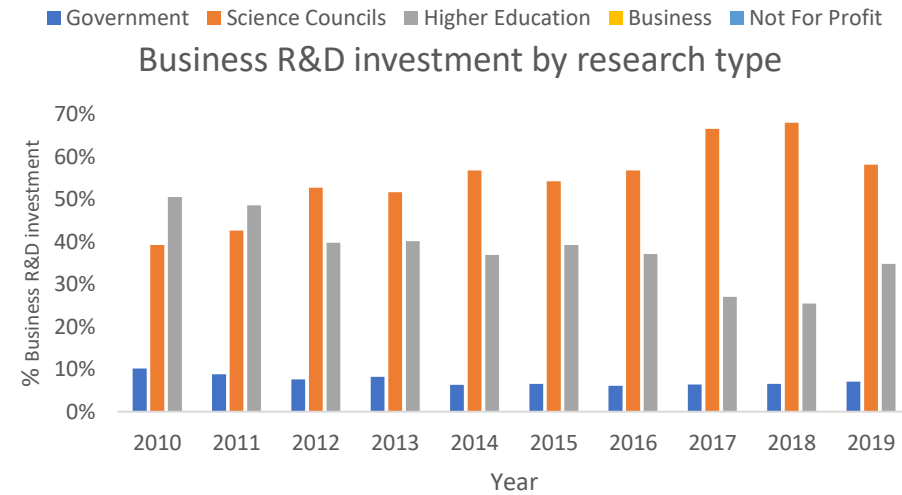
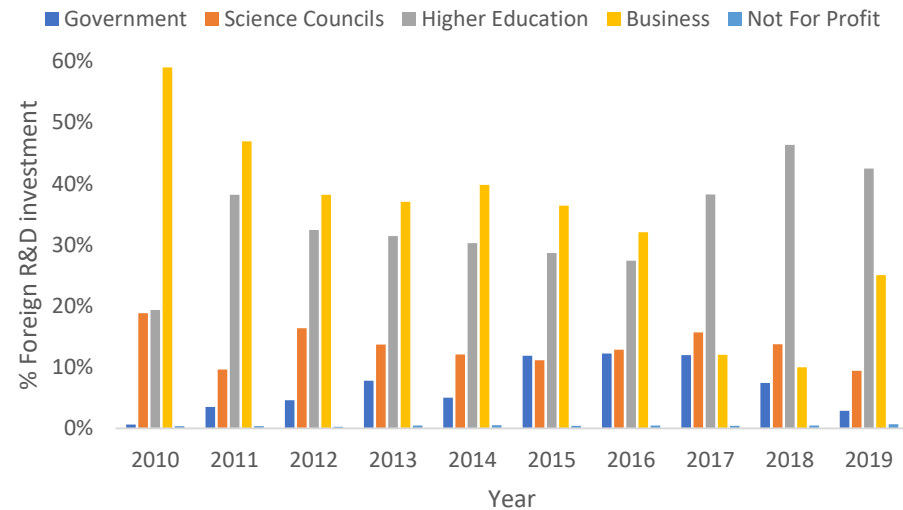
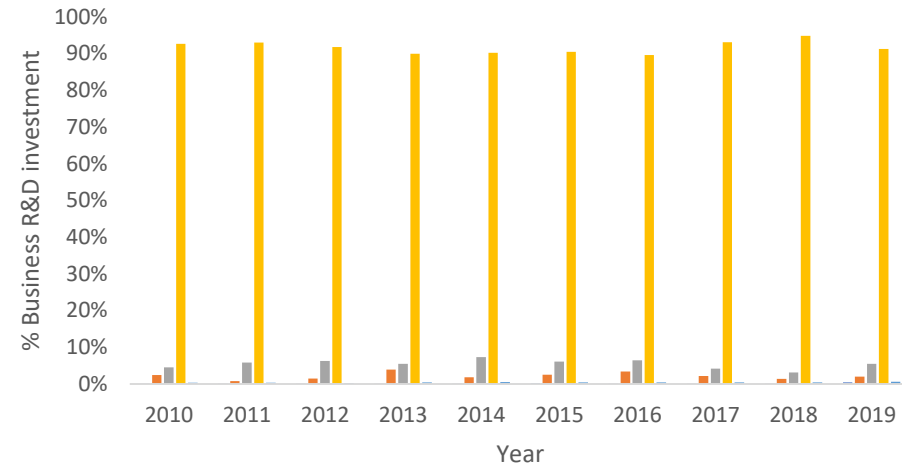
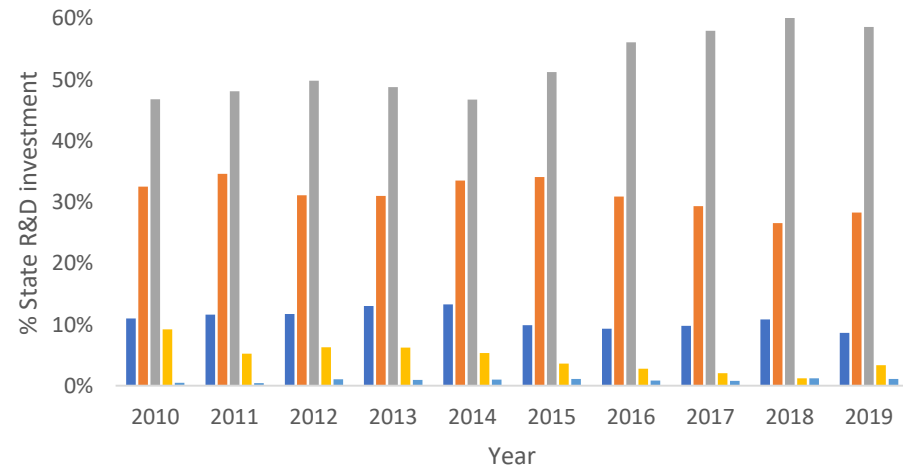
■ Basic ■ Applied ■ Experimental

Legend: ■ Government ■ Business ■ Foreign



■ Actual ■ Optimal

Results & discussion...

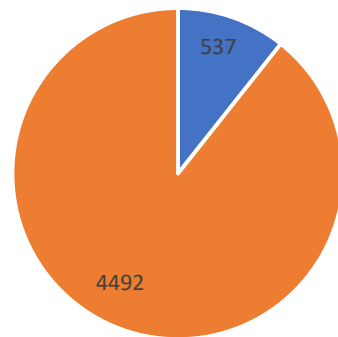


Government Science Councils Higher Education Business Not For Profit

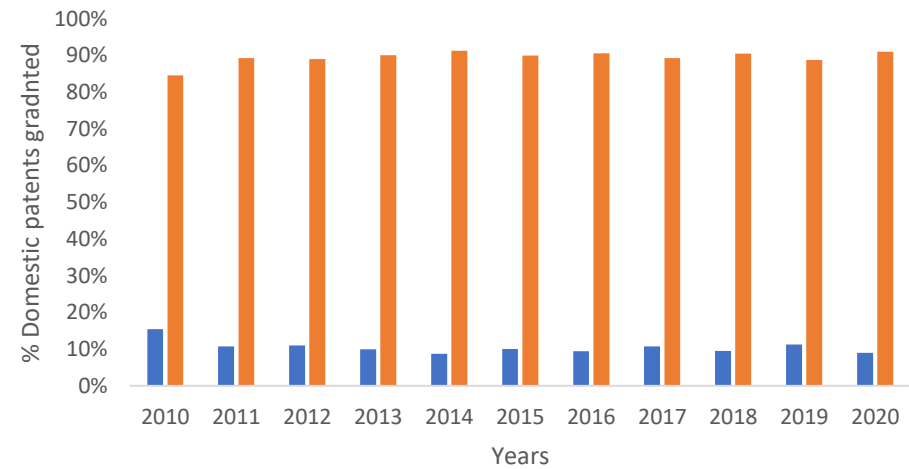
Basic Applied Experimental

Results & discussion...

Average annual granted patents - 2010 to 2020



■ Resident ■ Non-Resident



■ Resident % ■ Non-Resident %

Emerging themes

- South Africa sub-optimally overinvests on applied research
- Business R&D is now dominated by applied research
- Underinvestment in experimental research could explain the persistent innovation chasm
- State R&D investment has not encouraged business R&D investment as less than 10% is directed to business R&D, and vice-versa
- Foreign R&D investment has shifted away from business sector towards higher education
- Domestic granted patents are dominated by non-residents - 89% on average

Concluding remarks

- There is a misalignment between state and business R&D investment objectives
- Business has reduced and redirected R&D investment to applied (short-term) vs basic & experimental (long-term)
- Industrial policy to incentivize business R&D investment - basic & experimental – in South Africa
- State to increase R&D investment allocation to business sector while retaining the overall R&D objectives – example through contract R&D

Trade & Industrial Policy Strategies

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