Impact of the Government Funding Reforms on the Research and Development at Malaysian Public Universities

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Abstract

The main objective of this study is to assess whether the reforms in funding for public universities have facilitated the prioritization of government objectives within the sector. This question is examined through the lens of agency theory, which examines the relationship between agent and principal to facilitate a reduction in goal conflict and/or information asymmetry. This theory is used to examine the government-university relationship on changes in Malaysian Federal Government funding through reductions in goal conflict and/or information asymmetry in Malaysian public universities. This paper presents the findings from the questionnaire. Data were analyzed using descriptive and inferential statistic to answer the research question. The final section ends with presentation of summary and conclusion of the study with a review of overall key findings.

Keywords: higher education, agency theory, funding, Malaysian public universities, strategic planning

1. Introduction

The Higher Education Institutions (HEIs) Research and Development (R&D) direction in today environment has moved towards achieving the excellence. According to Auranen and Nieminen (2010), the shift emphasised of making the HEIs system more efficient and productive. Indeed, the success of R&D activities now is being used as indicators of economic growth. This statement is then further confirm by the National Science and Technology Commission (2004), where intellectual capital, quality of academic programs, excellence in R&D and production will have a significant impact in creating prosperity, economic stability and social harmony. Furthermore, Carlsson and Fridh (2002) argue that the success of such research depends not only on the relationship between universities and the business community, but also the acceptance of research activity itself or whether there is a product that features around that affected community culture, organization and incentive structure of the university itself.

Over the period of the National Higher Education Strategic Plan implementation, the government have developed a plan to enhance the R&D capacity of universities. With this new development the government objectives are to develop and strengthen research capacity and innovation in institutions of higher learning in order to compete globally. Accordingly, the Malaysian Government targets by 2020, at least six public universities are able to be classified as Research Universities (RUs), twenty centre of excellence receive international recognition and ten per cent of the research to be commercialised (Ministry of Higher Education, 2007a). In the meantime, the government has recognised the important contribution of higher education sector to promote ecosystem-based innovation through R&D (Abdullah, 2010). As a result, the government announcement to upgrade four public universities to Research Universities (RUs) status under the Ninth Malaysia Plan (9MP) and one in Ten Malaysian Plan (10th MP) has provided additional funding from government of RM 153 million each to encourage R&D activities (Azizan, 2007).

2. Literature Review

The importance of R&D has long been known. These activities are expected to help develop existing industry with further technological improvements and maintain competitiveness in the market (Wild, Bernstein, & Subramanyam, 2001). R&D activity also helps the development of technology innovation to produce new products and services that will meet the customers' needs (Boer, 2002).

The 21st century has witnesses the changes of innovation in science and technology that shaping the future of higher education development in Malaysia. In the knowledge century, higher education shapes the goal to sustainability in social, economic, technological and environmental. It is essential that the universities work more closely with the students, and other stakeholders to meet these challenges.

During the implementation of the Ninth Malaysian Plan, the Ministry of Higher Education (MoHE) has a planning to reform the higher education system (Oorjitham, 2005) that focuses on seven core areas. This reform is including a financial mechanism so that public universities can compete and at the same time remaining accountable to the Malaysian government. In line with the transformation, the Federal Government has allocated RM45.1 billion for the expenditure of education and training development.

Programme	8MP Expenditure	9MP Allocation
Education	**37,922.0**	**40,356.5**
Pre-school	215.7	807.3
Primary Education	5,369.3	4,837.3
Secondary Education	8,748.1	6,792.8
Government & Government-aided Schools (Academic)	7,931.2	5,549.1
MARA Junior Science Colleges	433.1	614.5
Government & Government-aided Schools (Technical & Vocational)	383.8	629.2
Tertiary Education	13,403.9	16,069.0
Teacher Education	1,368.1	577.7
Other Educational Support Programmes	8,816.9	11,272.4
Training	**4,450.9**	**4,792.6**
Industrial Training	3,930.6	4,103.6
Commercial Training	158.6	179.5
Management Training	361.7	509.5
Total	**42.372.9**	**45,149.1**

Figure 1. Development expenditure and allocation for education and training 2001-2010 (RM million)

Source: Economic Planning Unit (2006)

The Ninth Malaysian Plan also shows an increase budget for R&D. Here, the Ministry of Science, Technology, and Innovation (MOSTI) and MOHE is the agencies that have the authority to provided funding for Malaysian HEIs. For the Ninth Plan period, an allocation of RM5.3 billion will be provided to increase the culture of R&D in Malaysia.

Programme	8MP Expenditure	9MP Allocation
Research and Development (R&D)	**926.6**	**1,581.6**
R&D Grant[1]	926.6	-
ScienceFund/Fundamental Research	-	1,581.6
Technology Acquisition Fund (TAF)	**70.7**	**142.5**
Commercialisation of Technology	**267.5**	**1,843.3**
Industry R&D Grant Scheme (IGS)	197.0	-
Commercialisation of Research and Development Fund (CRDF)	30.5	115.0
Technology Development and Incubator Programme[2]	40.0	228.3
TechnoFund	-	1,500.0
S&T Human Resource Development and Awareness	**123.1**	**650.6**
S&T Infrastructure	**1,950.0**	**1,035.1**
Total	**3,337.9**	**5,253.1**

Figure 2. Development expenditure and allocation for science, technology and innovation from 2001 to 2010 (RM million)

Source: Economic Planning Unit (2006)

The Malaysian Higher Education Strategic Plan beyond 2020 represents a serious endeavor by the MoHE to transform the higher education system in Malaysia. The blueprint of this plan has been released to ensure that Malaysian public universities become more creative and innovative, and embark on new directions to achieve world-class status as a hub for higher education in a challenging international environment. The government has also directed Malaysian public universities to implement the funding changes in order to ensure that all stakeholders obtain the benefit from the improved performance, accountability and autonomy.

2.1 R&D Activity and Culture

IMD World Competitiveness Yearbook 2008 revealed that the highest proportion of total full-time R&D personnel led by China, which is 21.4 per cent, followed by Russia (13.2%), Japan (13.1%), Germany (6.9%), France (5.1%), United Kingdom (4.6%) and Korea (3.1%). Malaysia has only a fraction of the total full-time researcher of 0.2 per cent from the total R&D. Meanwhile, the National Survey Report of Research and Development (2008) indicated that the ratio of researchers per 10,000 labor forces shows the decline in 2006. This downward trend may be due to the lack of budget to carry out the activities of R&D during 2005 until 2006.

Carlsson and Fridh (2002) argued that the success of research activities depends not only on the relationship between universities and the businesses community, but also about the acceptance of commercialization that are influenced by the culture surrounding communities, organizations and incentive structures at the university. Furthermore a study from World Bank/EPU report (March 2007) also identify the main factors that created barriers for the Malaysian universities to achieve the world class status includes: (1) governance and financing; (2) quality in HE; (3) unemployment; and (5) Research and collaboration between university and industry.

2.2 Agency Theory

There are many theories used for analysing issues relating to the subjects of initiating change in strategic policy and the relationship between the government and universities. Kivistö (2007) points out that there is increased scholarly interest in viewing the government-university relationship in the light of agency theory for understanding the dynamic between government control and university accountability. Agency theory seeks to explain the relationship between a principal (government) and agent (university) for investigating the role of individual and organisational interest, information flows, and incentives in higher education (Kivistö, 2005; Liefner, 2003; Schiller & Liefner, 2007; Ahmat et al., 2012). The findings of this research will contribute to knowledge related to the relationship between a government and publicly funded universities and elucidate the role of funding in that relationship. This paper provides an assessment of the effectiveness and efficiency of using a government funding model to facilitate the prioritisation of government objectives in public universities, particularly in developing countries.

This research also adds to academic knowledge in relation to the operation of the Malaysian university sector. This is particularly urgent for the overall economic growth and social stability of the nation. As Kretovics and Michaels (2007) note, higher education is critical to socio-political and economic issues. This study enhances understanding of the different components of the Malaysian public university sector and their response to change in the Malaysian Federal Government funding. The research question of the study is have changes in the Malaysian Federal Government funding altered the approach to R&D in Malaysian public universities through reductions in goal conflict and/or information asymmetry?

3. Methodology

In this study, the respondents were selected from different backgrounds and designations, which require specific responses according to their personal opinion and knowledge. At the end of the questions, participants were encouraged to make suggestions and comments concerning this research. The population of this research comprises 20 Malaysian public universities with respondents including Vice Chancellors/Rectors, Deputy Vice Chancellors/Deputy Rectors, Deans, Director of Strategic Planning or equivalent, and Head of Bursar Office or equivalent. The questionnaire design includes closed-ended questions with seven-point Likert scales ranging from 1 = strongly disagree to 7 = strongly agree and 1 = well below 2009 national average to 7 = well above 2009 national average and Likert scale from a value ranging from (1) 'well below 2009 national average' to (7) 'well above 2009 national average'. The previous studies have shown that the Likert scale was widely used in responses to the items in questionnaires (Burke & Lessard, 2002; Jongbloed, 2008a; Ramsden, 1991; Zhao, 1998). Although the optimal number of scale points on rating is debatable, the best range is considered to be from five to seven scale points (Sekaran, 2000).

A pilot study was carried out with the similar target population to evaluate the clarity and comprehensiveness of the instrument prior to collecting the primary data (Churchill, 1979; Munn & Drever, 1990). According to

Mohrman, Ma and Baker (2008), pilot interviews are a mini version of a full-scale study and useful for specific pre-testing of a questionnaire. The objectives of this trial run were to improve the research methods and procedures before undertaking the main survey, to find out the respondents' reaction in answering the questions, and to improve the reliability and validity of the survey instrument (Kreuger & Neuman, 2002; Marican, 2009; Sekaran, 2003; Teijlingen & Hundley, 2001). The pilot interview was carried out with a small group of respondents similar to those intended for participation in the final survey. Selection of top management suited to interviewing in this study was based on three different categories of Malaysian public universities. Respondents agreeing to participate in this study included one Deputy Vice Chancellor, one Dean, one Head of Bursar and one Director of Strategic Planning. A set of questionnaires was sent to each of these respondents, and appointments for interviews were made for an appropriate place and time approximately three weeks later.

Regardless of the research question being tested, both nonparametric and parametric tests have been performed in this study. Both of the statistical tests have the advantages and disadvantages. Nonparametric statistics deal with data where no assumption can be made about the probability distribution of the data and parametric statistics deal with normality as part of the important assumptions. A nonparametric test is also suitable for small samples and unequal variances. Norman (2010) points out that parametric statistics can be used with small sample sizes of unequal variance, and with non-normal distributions, with no fear of '*coming to the wrong conclusion*'. Nonparametric statistics are used in this study for two main reasons. The first is to confirm the data obtained using parametric statistics, and the second is to apply a test that is robust with respect to the violation of the normality assumptions.

The advantages of nonparametric statistical (Dallal, 2000; Gibbons, 1993; Siegel, 1956) test are as follows:

i. Nonparametric statistics make fewer assumptions about the data and may be more relevant to a particular situation (Siegel, 1956);

ii. Nonparametric statistics procedures can sometimes be used to obtain a quick answer with little calculation (Dallal, 2000);

iii. Nonparametric methods are available to treat data that are simply classificatory or categorical (Siegel, 1956); and

iv. Nonparametric statistics can be applied in a very wide variety of practical research situations in which classical statistics are not appropriate (Gibbons, 1993).

Specifically, the nonparametric tests performed in this study are: (1) one-sample Wilcoxon signed rank test; and (2) multi-sample Wilcoxon signed rank test. The parametric one-sample t-test is used to compare with results from the one-sample Wilcoxon signed rank test.

4. Results and Discussion

4.1 Demographic Analysis

Questionnaires were sent to participants of the selected universities by direct visit, mail and email. Participants were informed that the purpose of this study is to investigate the impact of government funding reforms on Malaysian public universities with the intention of fostering the development of academic and institutional excellence, as stated in the National Higher Education Strategic Plan 2020 and the National Higher Education Action Plan 2007-2010. The researcher took full responsibility for the administration of the questionnaire survey, which included the process of contacting participants, and distributing and collecting the questionnaires. Targeted populations of the Malaysian public universities were arranged for visits, mail and email in the following order: (1) Klang Valley (UM, UPM, UKM, UNMP, UIAM, and UiTM); (2) South Malaysia (UTM, UTHM, USIM, and UTeM), East Coast Malaysia (UMP, UMT, UMK and UMD); (3) Northern Malaysia (UUM, USM, UPSI and uniMAP); and (5) Borneo (UNIMAS and UMS). Out of 335 questionnaires distributed to the respondents only 120 were used in data analysis. Here results indicated that 67.5 per cent of the respondents were in the positions as Dean and 16.7 per cent were Deputy Vice Chancellors/Deputy Rectors. Meanwhile, only 7.5 per cent of the respondent from the positions as Heads of Bursar Offices or equivalent and finally 1.7 per cent of the respondents was Vice Chancellor.

4.2 Results Based on the One-sample Wilcoxon Signed Rank Test and One-sample T-Test

1) Results based on each item

Table 1 summarizes results of the seven items of question two, indicating that the median/mean of the data differs significantly from the stipulated value of four, as shown by a very low p-value (Sig.=0.000).

Table 1. Summary of the one-sample Wilcoxon signed rank test and one-sample t-test results

Items	One-sample Wilcoxon Signed Rank Test		One-sample T-test	
	Sig	Median	Mean	Sig
Improved overall R&D quality.	**.000**	6	5.48	**.000**
Improved quality of publication	**.000**	6	5.39	**.000**
Increased number of publications	**.000**	6	5.41	**.000**
Improved extent of commercialization	**.000**	5	5.43	**.000**
Increased R&D cooperation with industry	**.000**	6	5.41	**.000**
Improved research performance	**.000**	6	5.53	**.000**
Increased number of patents	**.000**	6	5.29	**.000**

The result shows that the respondents have agreed that changes in the government funding mechanisms have positively improved the approaches to R&D in Malaysian public universities through reductions in goal conflict and/or information asymmetry. Since in all cases the medians/means are above four there are statistically significant differences, the results obtained support the research objective of the study.

2) Results based on composite measure

Table 2 shows the results of the statistical analysis based on the average scores across all seven questions measuring for R&D. This composite measure is represented by the average scores of a median 5.57 for results of one-sample Wilcoxon signed rank test and mean 5.42 for results of one-sample t-test.

Table 2. Results of one-sample Wilcoxon signed rank test and one-sample t-test for research and development based on average scores

One-sample Wilcoxon Signed Rank Test		One-sample T-test				
Sig	Median	Mean	t	Sd	df	Sig
.000	5.57	5.4202	16.697	0.93	119	**.000**

The results indicate a significant difference between four and the median data as shown by very low Sig. value of, 0.000. Here, the one-sample t-test results show the same significance as the one-sample Wilcoxon signed rank nonparametric test. These results show that the respondents have agreed that the changes in the government funding have improved the direction of Malaysian public universities towards a better alignment with their approaches to R&D through reductions in goal conflict and/or information asymmetry.

4.3 Results of the Multi-Sample Wilcoxon Signed Rank Test for Research and Development in Response to 2010 Compared to 2006

1) Results based on each item

As indicated in Table 3, the results of the nonparametric multi-sample Wilcoxon signed rank test are significant at p<0.0005 (Sig. = 0.000) with z-scores ranging from -8.62 to -8.99.

Table 3. Summary of the multi-sample Wilcoxon signed rank test results

Items	2010 Compared 2006		2015 Compared 2010		2015 Compared 2006	
	z [a]	Asymp. Sig	z [a]	Asymp. Sig	z [a]	Asymp. Sig
How do you rate the overall quality of R&D in your university?	-8.615	.000	-8.547	.000	-9.231	.000
How do you rate the quality of publications in your university?	-8.874	.000	-8.901	.000	-9.273	.000
How do you rate the number of publications in your university?	-8.906	.000	-9.059	.000	-9.340	.000
How do you rate the extent of commercialisation in your university?	-8.905	.000	-9.012	.000	-9.229	.000

Items	2010 Compared 2006		2015 Compared 2010		2015 Compared 2006	
	z [a]	Asymp. Sig	z [a]	Asymp. Sig	z [a]	Asymp. Sig
How do you rate the number of patents generated at your university?	-8.935	.000	-8.935	.000	-9.140	.000
How do you rate the R&D cooperation with industry at your university?	-8.981	.000	-8.904	.000	-9.265	.000
How do you evaluate the ability of your university to generate funding for R&D through collaboration with industry?	-8.671	.000	-8.822	.000	-9.226	.000

a. Based on negative ranks

This suggests that the two sets of scores are significantly differences, with R&D at 2010 significantly favoured by the respondents, as indicated by the negative ranks.

2) Results based on composite measure

Table 4 presents the results of the statistical analysis based on the average scores for R&D. The results indicate a significant difference at $p<0.0005$ for average scores in response to 2010 compared to 2006.

Table 4. Results of the multi-sample Wilcoxon signed rank test in response to 2010 compared to 2006 based on average scores

	2010 Compared 2006
z [a]	-9.027
Asymp. Sig. (2-tailed)	**.000**

a. Based on negative ranks

The results indicate that the R&D at 2010 is indeed perceived to be higher than R&D at 2006 for this variable with z-scores at -9.03. As seen in the table above, it can be concluded that there were significant difference in the R&D scores at 2010 and 2006.

4.4 Results of the Multi-Sample Wilcoxon Signed Rank Test for Research and Development in Response to 2015 Compared to 2010

3) Results based on each item

The multi-sample Wilcoxon signed rank test for related measures in Table 3 yielded the significant differences with z-scores ranging from -8.82 to -9.06 at $p<0.0005$ (Sig. = 0.000) between the level for R&D activities at 2015 and 2010. Therefore, data from the sample support the research study stating that changes in the government funding mechanisms have positively impacted on the approaches to R&D activities in Malaysian public universities from 2015 (expected outcome) to 2010 as indicated by the negative ranks.

4) Results based on composite measure

Table 5 shows the results of the statistical analysis based on the average scores for R&D in response to direction of changes between 2015 and 2010 with a significant difference at $p<0.0005$.

Table 5. Results of the multi-sample Wilcoxon signed rank test for research and development in response to 2015 compared to 2010 base on average scores

	2015 Compared 2010
z [a]	-9.182
Asymp. Sig. (2-tailed)	**.000**

a. Based on negative ranks

The results indicate that the R&D for 2015 (expected outcome) is indeed perceived to be higher than R&D in 2010 with z-scores at -9.18. Therefore, it can be concluded that the two set of scores are significantly different.

4.5 Results of the Multi-Sample Wilcoxon Signed Rank Test for Research and Development in Response to 2015 Compared to 2006

5) Results based on each item

The multi-sample Wilcoxon signed rank test confirmed that the results of the R&D activities in response to 2015 compared to 2006 was significantly different (Sig = 0.000). The differences for these seven items are significant with z-scores ranging from -9.14 to -9.34 (see Table 3). Therefore, it can be concluded that the two sets of scores are significantly differences, with R&D for 2015 (expected outcome) significantly favoured by the respondents, as indicated by the negative ranks.

6) Results based on composite measure

Table 6 shows the results of the statistical analysis based on the average scores for R&D in response to direction of changes between 2015 and 2006.

Table 6. Results of the multi-sample Wilcoxon signed rank test for research and development in response to 2015 compared to 2006 based on average scores

	2015 Compared 2006
z [a]	-9.058
Asymp. Sig. (2-tailed)	**.000**

a. Based on negative ranks

The results show that the R&D for 2015 is indeed perceived to be higher than R&D in 2006 with a significant difference (Sig. 0.000) between the two sets of variables. The z-scores for this direction of changes was -9.06. Therefore, it can be concluded that the direction of changes for two sets of scores are significantly different. As seen in the table above, it can be concluded that there was a significant difference in the R&D scores in 2015 (expected outcome) and 2006.

5. Discussion

Findings from questionnaires support that the government's funding changes have altered the approach to improving the overall quality of R&D in public universities. The government goals to enhance the R&D quality are clearly addressed in the National Higher Education Strategic Plan beyond 2020. In this study, results from one-sample nonparametric tests and one-sample t-tests suggested that the respondents agreed that the institutions are working to improve overall R&D quality with statistically significant difference found (p = 0.000) for all seven items. The main purpose of government investment was to encourage the development of science and technology. The Malaysian Government has put greater focus on R&D with additional funding available to RAUs and the research grants are awarded based on competitive assessment. These findings are consistent with the government objectives to maximise the limited resources available to excel in research with the funding focus more on wealth creation. Participants in the interviews explained that the R&D performances are one of the government's important agendas. Therefore, in performing the government R&D goals, the public universities' performances are tied to the funding resources.

Results from the questionnaire indicated that the quality and quantity of publications have not been negatively affected during the government funding reforms. In fact, respondents agreed that the funding reforms improved and increased the number and quality of publications in their institutions. In this study, commercialisation activities had also showed a significant improvement during the government funding reforms. The one-sample t-test and one-sample Wilcoxon signed rank test results indicated respondents' agreement with the statement. This result may be explained by the fact that the cooperation between the universities and industries can contribute to income generation.

This study has identified that the overall quality of R&D, publication, commercialisation, patents and cooperation with industry are some of the performance indicators used by the government to measure the universities' performances. In the context of the study, all this information is needed to be reported back to the government for the purpose of monitoring activities. The MyRA system is adopted to monitor activities related to R&D besides the annual report and periodic reports if required. The results show that the government has

improved the mechanisms used to measure the universities' performance using both output and outcomes indicators to reduce information asymmetry and/or goal conflict. The study found that the government is deeply concerned with this development and more frequent monitoring has been implemented to ensure that the investment made achieves the desired goals.

The Wilcoxon signed rank test results were conducted to evaluate the changes in participants' responses on the R&D activities of their respective university according to the direction of changes associated to R&D at Malaysian public universities in response to: 2010 compared to 2006; 2015 compared to 2010; and 2015 compared to 2006. The results show that the two sets of scores are significantly different for all seven items, with R&D at each direction significantly favoured by the respondents, as indicated by the negative ranks. Therefore, it can be concluded that the government funding reforms have statistically significant impact on the R&D activities in Malaysian public universities.

The results of this study suggest that agency theory is relevant to the study of the government-university relationship in order to understand the approaches used to reduce the goal conflicts and/or information asymmetries. Specifically, the MoHE goals to implement the monitoring, auditing and reporting mechanisms to assess the R&D outcomes are to ensure that the public universities' actions align with the principal's objectives (Eisenhardt, 1989; Kivistö, 2005). From the current study, the researcher found that the policy related to R&D in Malaysia has changed. The government strongly emphasised transforming the R&D, and public universities are playing an important role in this regard. This argument can be further supported by the announcement of the Prime Minister during tabling of the Tenth Malaysian Plan (2011 to 2015) and the implementation of national higher education blue prints (EPU, 2010a; MoHE, 2007a, 2007b). Moreover, the public universities are working to improve their R&D activities through publication, patents, commercialisation and cooperation with industry to acquire external funding. These efforts made by the public universities are in line with the objectives set by the government in an effort to bring the R&D to an international level. Based on the above findings, it is suggested that the MoHE continually support the R&D activities in Malaysian public universities. A possible explanation for this suggestion is that, based on the researcher observation and feedback obtained from the respondents, it is difficult for public universities in Malaysia to obtain research funding from external resources. Therefore, it is critically important that the Federal Government provides strong support to the public universities.

In addition, the government should consider assisting the public universities to commercialise their research products. A previous study highlighted that the successful rate of commercialisation is very small in Malaysia (Ab Aziz, Harris, & Norhashim, 2011). Based on this argument, this study suggests that a one-stop centre to accumulate and commercialise universities' research products should be established to market them at local and international levels.

In order to encourage the research environment in the public universities, the Federal Government and the universities' management should also consider providing incentives to the researchers. Therefore, this study suggests that the monetary and non-monetary incentives for research quality and quantity should be considered. Even though participants in the focus group interviews stated that the universities have provided incentives to researchers, the policies are unclear. Therefore, clear performance policies from both government and institutions should be established and made available to the public. The principal can set up the incentives program for pursuing activities that are suited to the government objectives over autonomous functions of the university that do not add to or detract from government objectives.

6. Conclusion

The purposed of this research is to investigate the impact of government funding changes on R&D activities. Overall, the findings suggest that university R&D has improved and is expected to improve further. The performance indicators as well as reporting, monitoring and auditing instruments have been used to oversee research performance in Malaysian public universities. The government is also using a standardised form of all these monitoring mechanisms to ensure all the agents are given an equal and fair evaluation. Public universities send in the reports of their research performance and the assessments are then made available online.

It was shown that funding reforms launched by the Federal Government have altered the approach towards R&D in public universities in Malaysia through reductions in goal conflicts and information asymmetries. The analysis confirmed that the R&D activities in public universities have improved and become more aligned with the government goals stated in the strategic plans. A specific area of focus in these funding reforms has been the implementation of competitive research assessment, which has encouraged academic staff to explore other avenues for research grants without relying too much on the government. Moreover, results from the focus group interviews found that the government has now displayed a strong interest in monitoring R&D activities in public

universities.

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