

UNIVERSITIES AND INNOVATION: UNIVERSITY RELEVANCE AND ENGAGEMENT ARE MORE LIKELY WHERE PUBLIC GOVERNANCE IS STRATEGIC

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Abstract

The paper opens with a consideration of the functions of universities and the idea of public policy promoting linkages between universities and businesses to support innovation and economic growth. This is followed by a section outlining the concept of a 'strategic state' and original analysis using data from the Institutional Profiles Database for 2016 on 63 countries. This analysis reveals a statistical association of (i) university relevance to business needs, and (ii) university engagement with firms. It is noted that this is consistent with the existence of reciprocal causation – greater university relevance encourages engagement with firms, and engagement with firms fosters university relevance. Next, the analysis shows that countries that had governments with strong strategic state characteristics and universities that were relevant and engaged with business firms were statistically associated with greater societal capacities for technological adaptation and innovation. The paper concludes by considering strategically governed universities. Several suggestions are made, including one that public policy should aim for universities to have strategic autonomy and another that central government (in a spirit of cooperation and partnership) supports local government, local businesses, and universities in their efforts to create and operate locally focused collaborations to innovate and bring about economic development.

Keywords: Strategic State, universities, strategic autonomy, collaborations, innovation, local economic development.

1. The functions of a university

In the 1960s and 1970s, the functions of the university could be linked to the economic processes of an industrial society (Habermas, 1971, p. 2):

‘... universities must not only transmit technically exploitable knowledge, but also produce it. This includes both information flowing from research into the channels of industrial utilization, armament, and social welfare, and advisory knowledge that enters into strategies of administration, government, and other decision-making powers, such as private enterprises.’

By the mid-1980s the phrase knowledge-based economy was much more likely to be used than industrial society. Policymakers and others involved in economic development were also spotting that this new type of economy had implications for the educational sector. For example, Mr. P. McMenamin, an Executive director in the Industrial Development Authority of the Republic of Ireland told at an international conference (Joyce and Woods, 1986, p. 12):

‘The growth sectors internationally will be in information technology, production automation and biotechnology and we shall have to expand in those areas also. They are knowledge-based industries. The link between the educational and producing sectors of the economy will have to be strengthened and we must continue to improve educational provision.’

Some commentators emphasized the linkages between public and private sectors as well as the education link to the economy and the triple helix model emerged as a way of describing the linkages between all three types of actors (Etzkowitz *et al.*, 2000, p. 315):

‘In a knowledge-based economy, the university becomes a key element of the innovation system both as human capital provider and seedbed of new firms. Three institutional spheres (public, private and academic), that formerly operated at arm’s length in laissez faire societies, are increasingly interwoven with a spiral pattern of linkages emerging at various stages of the innovation and industrial policy-making processes.’

2. Public policy on linking universities and businesses

There are multiple ways in which universities can influence innovation and local economic development. This includes universities focusing on the needs of businesses when they design educational programs, thus improving the employability of students. Individual academics, technical and other staff, and students can leave the university to commercialize entrepreneurial ideas by the formation of business start-ups. Then there is the possibility of technology transfers through collaborations with businesses. These and other possibilities of a positive university contribution to economic well-being have been known for decades. Governments long ago began to design public policies to promote links between universities and businesses that would lead to innovation and economic growth.

Public policy can encourage specialist centers in universities that support businesses. For example, in the United States, the Public Works and Economic Development Act of 1965 set up the Economic Development Administration (EDA) program as a result of which more than 20 University Technical Assistance Centers were formed.

Public policy can foster links and networks between education and businesses. An example from the UK of the former was the local authority financed College Employer Links Project (CELP). The aim in this case was to help education better appreciate business needs in the areas of training and education. Another sub-national example was provided by the technology networks created by the Greater London Council in 1983. These were intended to encourage technology transfer and were created close to London polytechnics, universities, and teaching hospitals.

Turning to the national level, we can note that the Japanese governments of the 1960s, 1970s, and 1980s were responsible for very ambitious policies and programs to bring businesses on one hand and educational and research institutions on the other into closer physical proximity and alignment. One government policy initiative was the 1963 decision to build Tsukuba City, close to Tokyo (Joyce and Woods, 1986, p. 7):

‘In the years from 1974 to 1979, many national educational and research institutions were established there, including the University of Tsukuba, science and engineering research institutes, and health, agriculture, forestry, and fisheries research institutes. The location of large businesses also in Tsukuba City has produced a massive education-research-industry complex.’

In the 1980s the Japanese government began a new phase of their public policy on universities and businesses with the passing of the Law for Accelerating Regional Development Based upon High Technology Industrial Complexes (1983). Each of the complexes could be based on one or more cities and were called a ‘technopolis’ (Joyce and Woods, 1986, p. 7):

‘The responsibility for preparing development plans rests with regional authorities and national assistance is then provided in the form of finance to businesses, tax advantages, and the development of the infrastructure. Each technopolis is a complex of universities, research institutions and industries, and includes one or more cities. A key objective in the creation of a technopolis has been identified as the promotion of mutual exchanges between universities and research institutes, on the one hand, and industry on the other.’

3. Public policy in the age of the strategic state

The question arises as to whether the linking of universities to business and the university collaborations with businesses as part of the triple helix (or quadruple helix etc.) eventually causes university governance to change and causes other internal changes to the universities. These changes could include cultural ones. If it is assumed that university academics should engage more strongly in ‘entrepreneurial’ activities, it may be hypothesized that scientific curiosity and an attitude of ‘disinterestedness’ fade in importance within

the university. Implicitly, such changes may mean that universities form links and collaborations with industry and government partners at the expense of maintaining traditional university norms and academic autonomy.

Public policy on universities may be affected by the nature of the public governance system of a country, which we know in Europe has been subject to much reform in the last two decades, for various reasons. One tendency in the reforms has been to create more strategic and delivery capacity at the national level of government, which could be seen as an evolution in the bureaucratic characteristics of public administration. One possible end point for such reforms might be the realization of strategic states, meaning states that have long-term strategic visions for major policy sectors, activities aligned with strategic visions, good coordination and cooperation within administrative structures, policy-making that is experimental and adapts smoothly to changes in context, strong policy evaluation capabilities, and what is termed a whole-of-society approach (see Joyce, 2022).

Public policy should be aiming to improve the quality of the higher education system. In the contemporary world, this would mean evaluating universities using two criteria: (i) their relevance to the society's goals for social and economic development; and (ii) their engagement with others as part of a whole-of-society approach. In fact, this defines a good university system as almost the opposite of an 'ivory tower' university system. The latter stands aloof from society and its membership is imagined to form society's intellectual elite pursuing curiosity-driven research and having access to a stock of accumulated knowledge in books and journals in university libraries.

Using data from the Institutional Profiles Database for 2016 we can see how higher education systems (universities and research institutes) were rated for their meeting of business needs ('relevance') and the strength of university relationships with business firms ('engagement'). Table 1 below shows countries grouped according to their ratings on these two dimensions.

There is a moderate association between ratings of university relevance and engagement with business firms. This is plausible. It is possible that relevance increases because of what is learned when there is more engagement with businesses, but presumably, engagement with firms is easier to initiate and maintain where firms perceive there to be a significant level of relevance. So, this association could be a product of reciprocal causation.

If the grouping of countries in 2016 based on ratings of university relevance and engagement with business is valid, then we can suggest countries that should use public policy to develop their universities' contribution to society's social and economic development. In Europe for example, the higher education systems of Greece, Hungary, Lithuania, Portugal, Romania, and Ukraine were, in 2016, relatively low on relevance and relatively low on engagement. These could be contrasted with the higher education systems of Austria, Denmark, Finland, Germany, Netherlands, Norway, Slovenia, Sweden, and the UK which were relatively strong in terms of relevance and engagement.

The analysis of data from the Institutional Profile Database suggests some benefits that might be predicted if the relevance and engagement of higher education systems are increased. It seems that in 2016 the countries with higher levels of relevance and engagement

Table 1: Relevance and engagement of higher education systems in 2016

Engagement	Relevance			
	Very low (business needs not met or little met)	Low	High	Very high (business needs met)
Strong intensity		Australia	Austria, Brazil, UK	Canada, Finland, USA
Slightly strong	Czechia, Pakistan	Colombia, Estonia, France, Ireland, New Zealand	China, Costa Rica, Denmark, Kuwait, Russia	Germany, Netherlands, Norway, Slovenia, Sweden
Weak	Bahrain, Oman, Poland, Spain, Tunisia	Bangladesh, Greece, Hungary, Lithuania, Malaysia, Nigeria, Peru, Portugal, Qatar, Romania, Ukraine, UAE	Argentina, India, Italy, South Korea	Japan
Very weak intensity and slightly weak intensity	Algeria, Georgia, Indonesia, Mozambique, Paraguay, Saudi Arabia, Vietnam	Cambodia, Egypt, Ghana, South Africa, Turkey, Mexico	Belgium, Chile	

Notes: The table is based on data from the Institutional Profiles Database. The relevance rating is based on ratings of ‘Does the higher education system meet business needs?’ The engagement rating is based on an item that was worded: ‘Strength of relationship between firms and universities/research institutes.’ In both cases, the ratings were on a scale of 0 to 4, but for this table, the 0 and 1 ratings were combined because only three countries were rated as 0. The labeling of rows and columns extends the labelling in the Database and is suggestive of a possible meaningful interpretation of the numerical ratings.

were slightly associated with greater societal capacity for technological adaptation and innovation. The finding of only a slight association in the data may indicate that this type of societal capacity is dependent on multiple factors, one of which is the relevance and engagement with firms of universities.

We can also suggest that increasing this type of societal capacity is of some public interest because of its potential consequences. Bivariate analysis indicated that societal capacity for technological adaptation and innovation was slightly correlated with World Bank data on GDP per capita and slightly correlated with the overall state of countries in terms of sustainable development data, neither of which were sourced from the Institutional Profile Database. In other words, improved relevance and engagement might increase societal capacity for technological adaptation and innovation, which in turn might boost citizens’ income and the overall level of social, economic, and environmental well-being. It must be stressed that the suggestion here is only that increasing this societal capacity might have a positive impact on such valuable outcomes for citizens. We cannot rule out the possibility that the association is spurious; for example, a country with a relatively high GDP per capita and a country that scores highly on sustainable

development indicators might also have other conditions that are the real causes of these positive outcomes for citizens.

In fact, relatively good ratings of the higher education system on both relevance and engagement with business were strongly associated with public governance systems that incorporated strategic state characteristics (the bivariate correlation was 0.67 for a sample of 63 countries). See above for a list of the characteristics of a strategic state.

The tabular analysis displayed in Table 2 involves three factors: (i) strategic state characteristics of the public governance system, (ii) university relevance and engagement with business, and (iii) societal capacity for technological adaptation and innovation. This table cannot establish the existence and exact nature of the causal linkages between the three factors, but we are entitled to say it raises the following possibility: that the most favorable conditions for a high societal capacity for technological adaptation and innovation are a strong development of strategic state characteristics and a higher education system with universities that are highly relevant and highly engaged with firms.

Table 2: Possible causes of societal capacity for technological adaptation and innovation

Strategic state	Universities relevant & engaged	Society's capacity for technological adaptation and innovation	
		Low	High
Strong	Strong	Argentina, Australia (2)	Austria, Canada, China, Colombia, Costa Rica, Denmark, Estonia, Finland, France, Germany, Japan, Netherlands, New Zealand, Norway, Singapore, Slovenia, S. Korea, Sweden, UK, USA (20)
Strong	Weak	Bangladesh, S. Africa (2)	Bahrain, Belgium, Ghana, Lithuania, Portugal, UAE (6)
Weak	Strong	Brazil, India, Italy (3)	Ireland, Kuwait, Russia (3)
Weak	Weak	Algeria, Chile, Georgia, Greece, Hungary, Malaysia, Mozambique, Nigeria, Oman, Paraguay, Peru, Romania, Turkey (13)	Cambodia, Czech Republic, Egypt, Indonesia, Mexico, Pakistan, Poland, Qatar, Saudi Arabia, Spain, Tunisia, Ukraine, Venezuela, Vietnam (14)
		20	43

Note: The two factors of university relevance and engagement with business were combined in a simple additive calculation and the resultant new factor was dichotomized for use in Table 2.

4. Strategically governed universities

Some would argue that universities should have autonomy. If they do have autonomy government must find ways to encourage and facilitate universities to collaborate with government and business. It has also been argued that universities operate in volatile and complex environments and therefore need strategic capacity (Middlehurst, 2004). Therefore, if governments want to use public policy to change the missions of universities, then they should consider how they encourage them to adopt and vigorously use strategic plan-

ning as a tool of university governance but also how they ensure or incentivize universities to pursue the missions set for them by public policy.

Public policy has been, and can be, delivered through legislative, financial and bureaucratic mechanisms, including ones that make universities accountable to government ministries. Public policy on universities can also be delivered by creating regulatory bodies or agencies that function as intermediaries between the central government and the university sector. The government might, for example, place a legal duty on the regulator to develop a regulatory framework that requires the use of strategic planning as the main planning and budgeting framework for use by university leaders and governing bodies in universities. Regulators can use a range of methods to ensure that there is a good rate of university compliance with strategic planning regulations.

As a matter of public policy, governments could introduce and ensure a process of progressive differentiation of universities by fostering diversity in the primary missions of individual universities. All universities would be engaged in teaching, but might, for example, have distinctive capabilities or strengths in teaching, research, widening access to higher education, or supporting local economic development activities. This means there could be research focused universities, there could be teaching focused universities, widening access focused universities, and universities with a primary focus on innovation and economic development support activities. Universities with a primary mission focused on innovation and economic development would over time increasingly align their investments, capacity, and external relations with their mission.

Strategic autonomy would be needed for all types of universities to make a reality of the existence of specialized university missions. It is quite likely that without a great deal of strategic autonomy universities would be too constrained to achieve the relevance and engagement that their specialized missions require. This may mean that central government educational ministries must ‘stand back’ and respect the strategic autonomy of universities. At the same time, the government will need to feel it has all the incentives and other means it needs to ensure that universities are fully committed to delivering their formal missions.

Finally, if we assume that local government is needed in any and every country because localities are heterogeneous in nature, then strategic autonomy for universities should make it easier for them to design and participate in collaborations with local government and business to match the needs of the local context. And ideally, the central government should facilitate and support all the local partners in collaborations for innovation and economic development – meaning the local authorities, the private sector, and universities.

5. Summary

The ability of universities to contribute to innovation and economic development locally or nationally depends in part on how well the universities ensure they are relevant to societal (including business) needs and the engagement they achieve with other stakeholders such as local governments and businesses. This underlines the modern meaning of

quality in the higher education sector which is to a significant extent about the university's relevance and their engagement externally with others.

Universities operate in a context that is in part constituted by the national system of public governance. Universities that have primary missions to support innovation and economic development need strategic autonomy to deliver their missions. Therefore, increased university strategic autonomy as well as greater constructive central government support, may be quite critical in many countries to ensuring that universities are able to step up their contribution to innovation and economic development.

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