

Economic structure of educational process and its implications for the higher education reform

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Abstract. *Playing a pivotal role in the development of the modern society, higher education industry has reached its capacity at least a decade ago and since then has lost its former characteristics of a public good. Funding challenges and non-consistency in quality of output dominate the modern discussion on tertiary education policies in search for the optimal way of reforming the sector. None of the policies so far had a close look at the operational structure of colleges and universities from the economic perspective, which by the author's opinion is the reason behind the lack of progress in reforming the sector. This study presents a discussion on economic structure of different functions within the higher education process and suggests the levels of competition and regulation most appropriate for each of these functions. The proposed option for the higher education reform allows greatly reducing the costs of obtaining a post-secondary qualification, while simultaneously addressing the quality issues.*

Keywords: Higher education reform, market structure, market failure, natural monopoly.

JEL Classification: H41, I23, I28, L10, O15, O40.

1. Introduction and literature review

Trow (1973) suggested that when the higher education enrolments is between 20 and 30 percent of the total ‘relevant university-age’ population the society moves to a mass higher education system and, when this proportion exceeds 30 percent, the society enters an era of universal higher education. Trow argued that with enrolment beyond the 15 percent, when the postsecondary education becomes accessible not only to the elite but to all socio-economic groups, the industry in its current shape wouldn’t be able to accommodate all seeking a degree, and therefore, must be reformed. The 30 percent threshold of ‘massification’ had been already passed in some major western European countries such as Germany, France, UK and Italy by the end of the 20th century (Altbach et al., 1999) and it has become obvious that Trow was absolutely right: the pressures from the number of enrolments on the budget and the heterogeneity in the quality of output are the facts that call for an urgent reform of the higher education sector.

Although the higher education loan schemes in some developed countries such as Higher Education Loan (HELP) in Australia are relatively more cost-effective compared to the free higher education in countries such as Germany and Russia (Altbach et al., 2009), they are rapidly becoming unsustainable due to a large proportion of loans that will never be repaid and the lengthy period of time the performing loans are paid back (Norton and Cherastidham, 2016). In order to reduce financial pressure on the budget, a number of countries encourage private post-secondary institutions to enter the market and by privatising public universities (Amaral et al., 2003; Herbst, 2007). However, privatisation usually results in a significant increase of tuition fees and a decrease in affordability of higher education for potential students from certain socio-economic groups as well as a long list of other non-desirable social and economic outcomes in the long run (Thaddieus and Rabovsky, 2011).

All modern attempts to address the funding issues and reform the higher education sector suffer from one common drawback – they heavily rely upon universities in delivering the change, while neither the administrators nor the academic staff have an incentive to replace their comfortable working arrangements with fierce competition for the student enrolments. Other economic agents at the higher education market such as students, parents, and publishers also have no interest in changing a clear and established system with a new one. A situation when economic agents have no incentives to achieve a socially desirable outcome is commonly referred to as a market failure, which further implies that delegating the change management to the educational institutions is destined to fail in achieving the goals of the reform. The situation is much worse in the post-communist countries due to the traditionally low salaries of academic staff (US\$433 per month in Russia, for example) that resulted in brain-drain and a wide-spread corruption within the sector (ICEF Monitor, 2013; Kurilla, 2011; Darden, 2008; Knox, 2008).

Further, in response to ‘massification’ and the resulting budgetary pressures, the governments in many countries are considering deregulating tuition fees (or have already allowed universities to set their fees) and reducing the number of government supported university places (Altbach et al., 2009). The major concern is that this premature push towards commercialisation takes place in an absence of any proper preliminary economic

analysis of the industry, while historical evidence suggests that fee deregulation, by itself, cannot solve the budgetary problems and would definitely result in the long-run negative spill-over effects for the rest of economy such as reduction in accessibility for the lower socio-economic groups (Lucas, 2001), slowing down the national growth in human capital and fostering corruption within the sector and beyond (see, for example, Banerjee and Duflo, 2008; Bussolo, De Hoyos et al., 2007; Kharas 2010; Ravallion, 2009, Shrivastava and Shrivastava, 2014).

In addition to the funding issues, higher education is suffering from problems associated with heterogeneity in the quality of educational output. Many higher educational institutions across the world are in charge of their own quality management with only some 'threshold standards', imposed upon institutions delivering degrees from Bachelor and above (e.g. Thompson-Whiteside, 2013), while thousands of post-secondary colleges with programs up to a Diploma level remain totally unregulated, despite their graduates are able to claim credits in electives and even core subjects when starting a Bachelor degree at a university. Under this kind of arrangements, it is absolutely impossible to achieve any consistency in quality, given an incentive for the institutions to maintain a financially optimal passing rates no matter what they actually are.

This study looks at the economic structure of the educational process and discusses its implications for the higher education reform. The rest of the paper is organised as following. Section 2 presents the modern trends in higher education, while Section 3 considers the structure of the sector from the educational process perspective. Section 4 looks at the quality issues in higher education. Section 5 concludes.

2. Current trends in higher education

Being an economic hub for production of leaders for virtually all sectors of the economy, starting from the childcare and finishing with public administration and space science, higher education is a truly unique industry that deserves very special attention. Faults in higher education put an enormous constraint on the development of entire country and frequently make restructuring of other industries impossible because of a lack of competent leaders and ground staff capable of managing and delivering these reforms. For example, despite a high quality effort of the National Assessment Program – Literacy and Numeracy (NAPLAN), the reform of the Australian secondary and primary education is not progressing well, with literacy and numeracy of Australian school students not improving since 2008 due to a poor quality of a significant proportion of teachers supplied by the Institutes of TAFE and universities (Bagshaw and Smith, 2016).

As discussed above, massification stretched the budgets in many countries beyond their capacity and made the existing funding systems unsustainable. Within the wide spectrum of modern approaches to higher education funding, at least in the first approximation, the underlying ideologies can be generally classified into four groups: capitalist; pseudo-capitalist, semi-socialist and socialist. The capitalist approach, with the US being the only example, looks at the higher education from a neo-liberal perspective and assumes it to be predominantly a private good. Therefore, while generally acknowledging the positive

spill-over effects from this sector to the rest of the economy, capitalists leave an absolute majority of private individuals to take care of their own education (Sallie Mae, 2014). The accessibility issues to the lower socio-economic groups to higher education in the US are deal with a very specific to this country's practice of alumni, personal and corporate contributions to the university budgets (Altbach et al., 2009; Saunders, 2010).

The pseudo-capitalist approach assumes that higher education is a private good with significant positive externalities and, in order to help individuals in accessing higher education, provides the students with educational loans such as HELP in Australia (Study Assist, 2016) and SLS in New Zealand (Inland Revenue, 2016). The governments in these countries do understand that a large proportion of these loans will never be repaid and the remainder of the loans will be repaid over a very lengthy period of time (Australia, 2016) but maintain and even increase the level of funding due the political pressures, effectively providing free education to a large proportion of their students similar to the socialist countries.

Semi-socialists view tertiary education mostly as a public good, assume that positive externalities greatly outweigh the current funding costs in the long run and tend to provide free higher education to the citizens. This is observed in the majority of the post-communist countries such as the Russian Federation (Carnoy et al., 2014). However, due to the budgetary constraints, the public funding is available only to a certain proportion of applicants with high secondary school and university entry exam results or to the ethnic minority groups (Carnoy et al., 2014), with the rest falling back to a pure capitalist model of funding.

Finally, the socialist ideology is represented by a diverse range of countries such as Vietnam, Bahrain, Kuwait (Coffman, 2003) and most states of Germany (Thomsen and von Haagen-Giebel, 2016), where the post-secondary education is considered to be a public good and is totally funded by the government with some minor restrictions to the poor quality students. Overall, all modern approaches to the higher education funding do not perform well in their current settings and are actively seeking to reform the higher education sector.

Although not at full strength yet, the higher education, or at least a large proportion of it, is moving on-line. Most universities are using learning platforms such as Blackboard and Moodle to provide the subject information, teaching material and facilities to submit and mark assignment as well as to communicate with the students (Guri-Rosenblit, 2009). Worth to note though, that most instructors today are opposing recording lectures and tutorials on video and uploading them onto the learning platforms in fear of exposing their shortcomings and becoming the targets for criticism from their supervisors and colleagues. Nevertheless, despite cultural and political resistance distance education is rapidly becoming a popular option for post-secondary studies for an increasingly larger number of students with English language domineering in communication in education and science, the stock of educational resources such as databases and ownership of publications (Altbach et al., 2009).

Finally, globalisation is a significant factor that influences modern higher education. With an ever increasing number of students studying abroad, many countries are seeking to achieve global interchangeability between universities. Examples are Bologna Process and Lisbon Strategy in Europe, ENLACES in Latin America, Brisbane Communiqué in the Asia-Pacific region (Altbach et al., 2009). Bologna Process is the most coherent effort to address the modern challenges in higher education. Under the proposed by Bologna common degree structure, 29 participating countries agreed on a credit transfer system and approaches to quality assurance with a view to facilitate free mobility of educators and students between countries and institutions (Crosier and Parveva, 2013; Lorenz, 2010).

3. The components of the educational processes and market failure in higher education⁽¹⁾

Despite full participation of countries with semi-socialist and socialist funding practices in the Bologna Process, the mainstream approach to the higher education reform stated by Bologna is deeply rooted in neo-liberalism, which implies a minimum interference from the government into the operations of individual institutions (Baltasiu and Bulumac, 2012), thus, ignoring the market failure that is clearly present in the sector and identifiable by the heterogeneity in the quality of educational output and the constantly rising costs of tertiary education (Lemke and Sughart, 2016). Bologna attempts to transform the sector by standardising degrees, inducing competition between educational institutions and by introducing quality management practices (Mansberger, 2006). However, Bologna Process is an attempt to reform the sector without any serious restructuring of the educational institutions themselves and, in presence of several sources of market failure, cannot bring about the optimal socially desirable outcome for reasons discussed below.

Similar to the electricity market, the market for higher education has sections that exhibit different market structures and, therefore, require different levels of regulation and competition in order to achieve the socially optimal result. Let's suppose that the higher educational process is divided into four main functions: curriculum, assessment, teaching and administration. The first area, curriculum, is dealing with structuring programs and courses and developing teaching materials. Currently in our interdependent world, most programs and subjects, especially the core subjects in a business degree, are so similar that one already can call them standardised. Given this, a logical answer to the question whether we need tens of thousands universities globally with an army of academic staff duplicating each other's work semester after semester is a definite 'no'. Access to the course structure, content and basic teaching material has a near zero marginal cost of using them and, thus, might become a public 'good', perfectly fitting into its characteristics of non-excludability and non-rivalry in consumption.

Assessment is concerned with writing exam and assignment papers according to the course content and specified learning outcomes. Assessment items, especially with respect to the final exams, can be randomly developed from a large, - although yet to be created, - and constantly updated test banks with random variation applied to parts of each exam question. This function also can be made a public 'good' to the extent of providing free of charge practice and diagnostic tests to the public for self-assessment of their preparedness to do

the course and sit the exam. Curriculum and assessment have all the features of a natural monopoly and is a clear case where competition between universities and colleges has resulted only in an increase in operational costs and the tuition fees and produced a belief that there might be such a thing as a poor quality university degree. Therefore, these two functions must be regulated by the government with competition restricted, at least within the national borders.

Teaching and academic administration provide services that are differentiated in their type and quality and, if separated from curriculum and assessment development, the former would exhibit all features of monopolistically competitive market and the latter is most likely to become an oligopoly. Current bureaucratic restrictions prevent competition between academics in teaching and put a significant burden on introducing innovative practices in teaching and academic management. If teaching separated from all other functions, competition will ensure that teaching is done by the best educators with the best modern teaching resources. A certain degree of competition under the government monitoring in academic administration will result in administration services being delivered by those who are able to offer the best environment and integrity for examination venues and reliability in keeping administrative records.

Frequent assessment sessions will remove duplication in teaching, which is the second largest source of inefficiency in higher education after duplication in curriculum and assessment development. In Australia, for example, where on the one hand the problems associated with the quality of education have been freely passed from the secondary schools to the universities after removal of vital prerequisites in many subject in late 1990s, on the other hand, a large proportion of students have to 'restudy' the material already covered at the high school and spend a whole semester studying with students who are lagging far behind. The exams might be conducted any time according to the student demand instead of waiting until the end of the teaching period.

The developments in the information and communication technology put ever-increasing pressure on traditional university teaching (Altbach, 2009). With teaching and learning going on-line, we might not need huge campuses that currently are blown out of proportion in urban areas where land prices are extremely high. Only some of the buildings will be required as examination theatres or used for face-to-face classes. There is an enormous amount of money to be saved if these real estate items are removed from the balance sheets of the universities and when thousands of academic, administrative and maintenance staff disappear from the universities' payrolls.

The marginal cost of an extra student studying on-line in the case of natural monopoly is approximately zero, which allows the government to pay just a few millions of dollars in annual fees to the program provider for an access to the educational material on an E-Learning platform such as Blackboard or Moodle for all citizens. There will be no need for subsidies in higher education and the tax burden will not be passed to the future generations. The costs of occupying a seat in the examination theatre, marking the exam paper, maintaining academic records and issuing degree certificates are very low and might not exceed a hundred dollars per subject, the amount of money a student can earn by working at McDonalds.

Paying out of own pocket always helps allocating resources where they are most needed and ensures that the funds are used in the most efficient way. The current student loan system might still exist to cover for the face-to-face teaching but only for those who need some extra help in their studies. The difference with the current system though is that the number and the content of these extra classes will be driven by the student demand and will not be set by the universities from the supply side. In such a system, the currently dominant doctrine ‘opportunity for everyone, university for some’ changes to ‘opportunity for everyone, university for everyone who wants it’.

The discussion above yields the conclusion that the future structure of the higher education is either a global monopoly or, more likely, an oligopoly with a few nations competing on a global scale. This means that there will be either one or just a few key providers of academic programs with the rest being engaged in service teaching and administration for the leaders or concentrating purely on research. The most uncomfortable thought though is that, separation of teaching from curriculum, assessment and administration implies that educational units such as universities and colleges will disintegrate, not necessarily due to the political resolutions but simply because of their inability to compete with a natural monopoly in curriculum and assessment.

To reform the sector, the government has to perform several tasks. Firstly, it must develop educational programs using a government corporation or by outsourcing the task to an existing tertiary education provider and make these programs freely available on-line. Secondly, the government must force all students at all accredited higher education institutions sit central exams at approved examination centres. Finally, the government must set up an academic administration facility for hosting and building test banks, monitoring exam invigilators and processing exam papers. The test bank must invite contributions from all practicing academics and put experts in corresponding teaching fields in charge of assessing proposed exam questions. The transition of institutions and their staff from being fully in command of the students to the situation when universities have to compete for each student by offering a better quality education and meeting every individual student needs will eventually increase the efficiency of the sector.

There are some seemingly unimportant events currently happening in the Australian tertiary education that indicate that we are already preparing for a significant change. Firstly, in 2014 Australia abolished university based student number system and introduced a universal student number (USI) (Student Identifiers Act, 2014), which will facilitate free movement of students between Australian universities. Secondly, there is a growing consensus within the ranks of academics and university administrators that a controlled exam is the most reliable indicator of educational quality and that continuous assessment is the way to motivate the students (see, for example, William, 2013). Continuous assessment has proved to be a powerful stimulator of learning activities and, if introduced, is able to significantly increase the passing rates for most challenging subjects even in cases when students are underprepared for tertiary studies (Mikhailitchenko, 2011). Assessment driven teaching works very well in traditional classes with heterogeneous student

population and is particularly important for students studying on-line because it allows them quickly identifying the gaps in knowledge and receiving an almost immediate feedback.

4. Quality issues in higher education

Apart from the cost reduction, there is another very important reason why teaching must be separated from curriculum, assessment and administration. It is related to the quality issues in tertiary education. The modern funding system of the tertiary education in countries such as Australia dictates minimum passing rates in order to prevent the outflow of students to the competitors irrespective of the actual student performance. With an exception for a few schools with high academic and research ranking, Australian universities simply are neither in a position to enforce any reasonable pre-requisite requirements for their students nor are they able to afford strict assessment marking rules and, therefore, have to pass an unidentified proportion of students who actually failed subjects.

Although the literature on student academic integrity is abundant (see, for example, Bernardi, 2004; Magnus et al., 2002; Sheard and Dick, 2003; Hrabak et al., 2004; Rettinger et al., 2004; McCabe, 2005; Teixeira and Rocha, 2010), the evidence of cheating by academics is extremely limited. Some indications of result manipulation, such as absence of marks within a close proximity to the passing rate or the re-examination results published on condition of strict anonymity, do exist though. For example, Mikhailitchenko (2011) constructed a detailed histogram of a subject final results for an AACSB accredited Business School at an Australian university and found that there were no marks between 45 (inclusive) and the passing mark of 50. Further, at an overseas institution which was in the process of seeking accreditation with AACSB, diagnostic tests showed that more than a half of the students commencing their university studies after completing a tertiary preparation program couldn't handle basic arithmetic despite having passing grades in a foundation mathematics course that included not only arithmetic but also algebra, calculus and basic statistics (Mikhailitchenko, 2013).

Further complications for quality in tertiary education are stemming from the technological progress. Globalisation and ICT developments, unfortunately, do not only facilitate teaching and learning; they also facilitate contract cheating and contribute negatively to the existing quality problems (Teixeira and Rocha, 2010; Jacks, 2016; Mogul, 2016). Easy-to-detect but hard-to-prove contract cheating might reach a significant proportion of all submitted written assignments. However, given legal and technical difficulties as well as existence of internal political pressures within educational institutions when dealing with this problem, it is currently impossible to research and quantify the phenomenon for the industry as a whole beyond some basic exploration.

The recent move of the Australian Federal government to remove the cap on tertiary student enrolments (Norton, 2013) was a sensible solution to address the accessibility for the students and ease the financial constraints previously put on the institutions. However, by lowering the academic requirements for admission and overcrowding the lecture theatres

as it is happening across the world (Altbach et al., 2009) and with no increase in the number of teaching staff (Bexley, 2013), the government effectively allowed to lower the academic standards, which can be assessed by looking at the negligible changes in the attrition rates after the Australian Tertiary Admission Rank (ATAR) has been dramatically reduced (DIICCSRTE, 2013).

In 2012 the Federal Government of Australia established Tertiary Education Quality and Standards Agency (TEQSA) as a regulatory body in higher education responsible for quality and the standards (Massaro, 2013). TEQSA principles are based on the 2008 *Review of Australian Higher Education* (Bradley Review, 2008), which stipulated a move from norms and relative standing to standardised criteria in assessing academic achievements of university graduates. The very same approach was previously manifested but never applied by the TEQSA's predecessor, Australian Universities Quality Agency (AUQA) (Bradley, 2008). However, due to the certain limitations in its setting such as lack of academic experience of its commissioners and the complexity and confusion within this agency, TEQSA is unlikely to deliver what it was created for (Massaro, 2013). In addition, TEQSA, precisely following the steps of AUQA, is planning to measure the capability of institutions to deliver quality output rather than measuring the actual quality.

A more efficient and reliable solution for quality monitoring and assessing the outcomes would be a total separation of teaching from the other processes such as curriculum, assessment and administration. This can be achieved by the government launching a quality educational portal with high-tech teaching material and a universal access, setting up rich test banks for the subjects and introducing compulsory central final exams for all accredited institutions. Transparency and accountability in marking can be achieved by marking on-line on learning platforms such as Blackboard or Moodle with no exam paper containing any information about the students other than the USI.

Teaching function, where the quality of the output should be measured by the students themselves according to their expected final grades, doesn't require any monitoring or regulation beyond the requirement to publish the results and student satisfaction data. The market will be able to provide sufficiently strong signals to the teaching institutions and individual instructors regarding the quality of their input through the student demand for their services and not by the potential of the institutions to deliver as reflected in TEQSA's accreditation process. Competition between institutions, individual instructors and regional markers will result in selection of the best in the field and in a quick adjustment of teaching methods to the student needs with no absolutely government intervention.

Under the proposed system, despite universities disappearing in their current form, there will be no redundancy for the existing academics as dramatic reduction in costs of education will bring about an immediate increase in the number of enrolments. The government needs to regulate only the curriculum and assessment section and to some extent monitor the administration of examination venues, marking and record-keeping. The academics must be properly stimulated to take an active part in building test banks, developing quality teaching materials such as video lectures and tutorials and marking the exam papers with diligence and integrity.

5. Conclusion

The study looked at the process of higher education from the economic perspective and suggested to separate the four functions that are currently performed by each curriculum developing educational institution across the world. Curriculum and assessment, where the efforts of millions of academics are currently duplicated, are natural monopolies and, due to the commonly known failures associated with this marked structure, must be either owned or regulated by the government. The government is expected to introduce central examinations for all accredited institutions, set up learning portals and organise sufficiently large and constantly upgradable test banks. Certain degree of monitoring is required for academic administration including exam marking, where oligopoly might be a more appropriate structure due to the costs associated with the quality control.

The market forces are able to direct teaching to meeting the students' demand according to the students' needs and abilities with the final grades being the best indicator of the teaching quality. Tertiary educational institutions will compete for the students by employing the best instructors and providing the best learning facilities. Final examinations might be conducted at any time when the student demand is sufficient for profit generating, which, together with the removal of the need for advanced students to spend as much time in lectures and tutorials as for their disadvantaged classmates, deletes a duplication in teaching and learning effort.

Although the proposed change might look extremely radical and might require a lot of discussion to satisfy all stakeholders, everyone will benefit from this reform in the long run. With a sharp decrease in costs, the number of enrolments is expected to increase dramatically, which ensures employment for all existing teaching and administrative staff and a growing need for more of them. Despite one video lecture or tutorial replaces hundreds of thousands of them taught by tens of thousands of lecturers over several decades, it cannot substitute a face-to-face experience for those who are underprepared and prefer a blended mode of study. Students will have a range of benefits such as being able to earn for their education themselves, avoiding higher education debt and the removal of the requirement to complete high school and enrolling into a Bachelor degree starting as early as within two years before completing their secondary education.

Reliance on educational institutions in both neo-liberal and socialist approaches cannot yield any significant positive change because in cases of market failure the market agents cannot act in the best public interest. Educational institutions will not be interested in reforming themselves unless they have no other alternative. Therefore, the government must rely on individual academics and not on institutions in developing programs and courses, contributing to the stock of on-line teaching material and writing questions for the assessment banks.

We have reached a point of time when it is possible to move forward and, after making primary and then secondary education free several decades ago, initiate a reform that leads to a high quality low-cost universal higher education system up to a Bachelor or even

Masters level and reap off all social and economic benefits of a better educated society. The suggested reform simultaneously solves accessibility and quality issues at virtually no cost to the society and huge savings to the budget. This type of reform is desirable, possible and inevitable with the only question remaining of when and in which country it begins.

Note

- ⁽¹⁾ The author doesn't insist that the proposed changes must be the same for all study majors. However, the model does fit well in most Business degrees, where the author has sufficient experience in teaching, administration, curriculum and assessment development.

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