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A Systematic Literature Review of Funding for Higher Education Institutions in Developed Countries

Abstract Resource allocation and funding in higher education is crucial to the success of reform and transformation of our higher education system. With a view to identifying trends and best practices in the area, utilizing a method of systematic literature review, we have critically reviewed relevant theories and practices from developed countries that are covered in the scholarly literature published in English in the past 10 years. Our review has revealed: (1) Several universal trends have exerted a decisive impact on resource allocation in higher education, for example, funding reduction and tuition fee increases, performance-based funding, privatization, corporatization, and internationalization; (2) Several theories underpin key research in the area, for example, new institutional economics, resource dependence theory, and political economy; (3) Several controversial issues have made their way into public debate, for example, higher education as a public good or private good, academic capitalism, educational equity, and the role of econometrics.

Keywords higher education, resource allocation, funding, developed countries

Introduction

Funding mechanism has long been on the agenda of higher education reforms in developed countries (Strehl, Reisinger, & Kalatschan, 2007, March). Given the increasingly limited financial resources as a result of economic slowdown,

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inflation, growing costs, and competition for government funds from other public sectors, resource allocation for higher education has become a focus of research internationally. Kallison and Cohen (2010) observed, “in the competition for scarce state dollars, higher education appropriations have frequently lost out to other priorities such as primary and secondary education, healthcare, and the criminal justice system” (p. 39). According to Delaney and Doyle (2014), in the US, higher education “takes the form of a balance wheel in state budgets” (p. 437), which means that, in bad budget years, higher education is cut more than other budget categories, and in good budget years, it is given a larger increase. While the “balance wheel” approach does not seem to be best practice, it is unknown what best practice actually is. There is a paucity of literature that depicts a fuller picture of higher education funding in the developed world. This paper provides a systematic literature review which has been triggered by the belief that, in spite of different social and political contexts, understanding of higher education funding patterns and trends in developed countries provides useful insight into what constitutes “best practice” in funding higher education in developing countries.

Method

A systematic literature review is characterized by using explicit and rigorous criteria to identify, evaluate, and synthesize all the literature on a chosen topic (Cronin, Ryan, & Coughlan, 2008). The method is believed to provide “valuable summaries of the research evidence base and as such play a key role in evidence informed decision-making” (Stewart, 2014, p. 588).

The chosen topic for the review is financial resource allocation for higher education in developed countries. We used Cronin et al.’s (2008) criterion of currency (i.e., the last 10 years at the earliest) for inclusion in the journal period, and therefore only included relevant academic journals published between 2006 and 2015. Given that some important academic literature may not necessarily appear in the journals, we also used Google Scholar to capture the breadth of relevant scholarly literature.

We selected 29 journals, each of which has “higher education” or “tertiary education” in its journal title, from the online database of journals entitled Journals in Higher Education (JIHE) developed by the Centre for Instructional

Development and Educational Research (CIDER) of Virginia Polytechnic Institute and State University in the US. For each journal, the content page(s), the title of each article, and (where necessary) article abstracts were examined for relevance. The criteria for inclusion of an article were: (1) The focus or one aspect of the article should fall within the scope of financial resource allocation for higher education; (2) The article should be peer-reviewed; (3) The subject matter should be concerned with higher education in developed countries. Key words for the Google Scholar search included “higher education,” “resource allocation,” “funding,” “fund allocation,” and the period set was 2006–2015. As a result, 178 articles of which 142 were from JIHE journals and 36 were from Google Scholar were selected for review. Due to space limitations, we have shortened the reference list for this article substantially.

Analysis and Findings

Patterns and Trends in Higher Education Funding

Decline in Funding and Rise in Tuition Fees

This pattern is most typical of higher education finance in the UK. It was announced in the 1980 Public Expenditure White Paper that there would be a 15 % cut in expenditure on higher education in the following three years, which is the first time that there has been a reduction in funding for higher education since World War II. This was following the previous removal of funding for non-EU international students (Williams, 2012; Carpentier, 2012). In 1990, grants for domestic and EU students began to be gradually replaced by loans. The 1998 Teaching and Higher Education Act introduced, and implemented in 1999, a £1,000 upfront annual fee supported by loans, which ended the era of universal free higher education tuition in the UK (Browne, 2010). The 2004 Higher Education Act introduced deferred variable fees of up to £3,000, which took effect in 2006 (Williams, 2012). The fees were then raised to £6,500, and further raised to £9,000 by the 2011 White Paper (Carpentier, 2012). The essence of the replacement of grants with loans was to convert direct subsidies to higher education institutions into decisions by students themselves on whether, how, and whom they pay, and therefore confer students with purchasing power. With

tuition ceiling tripled to £9,000, most of the government budget for higher education now goes to student loans rather than directly to higher education institutions. Under the student loan plus high fees policy, financial power has been transferred from the government to students, and in the long run, government expenditure will be reduced as student loans are repaid (Choi, 2015). Carpentier (2012) considered the rise of the fee ceiling to £9,000 to be “part of a longer historical trend” (p. 373).

In the US, after the 2008 recession, states have reduced their funding of higher education severely, with an average state funding cut of \$2,026 or 23 % (Mitchell, Palacios, & Leachman, 2014). Meanwhile, since the recession, higher education institutions across the country have increased tuition fees in response to declining state funding and rising costs. Since the 2007/2008 school year, tuition at four-year public colleges had risen by \$1,936, or 28 % by 2014, with the cost hike higher in Arizona (over 80 %), and Florida and Georgia (over 66 %; Mitchell et al., 2014). Over the last two decades, the cost of attending a higher education institution has grown significantly faster than median incomes, and the rise of federal student aid and tax credits has fallen short of covering the tuition increases (Dougherty & Natow, 2009, May; Mitchell et al., 2014).

In Australia, the Dawkins’ reform in the 1980s targeted a more selective approach to research funding, and a shift of the financial burden for higher education from the government to individuals and the private sector. In 1989, the Hawke government reintroduced tuition fees and a regulation that students had to contribute about one-fifth of the cost of their education. Since then, there has been a general trend of decline in government expenditure in the higher education sector and increase in the numbers of students (Long, 2010). The trend has forced higher education institutions to raise their own funds, with two common approaches being to cut operational costs and increase the numbers of international students (Long, 2010). To reduce operational costs, Australian higher education institutions employed around 67,000 teaching staff as casual employees in 2010. By 2012, about 60 % academic staff in Australian universities were employed on casual contracts. There has been a massive increase in the number of full-fee-paying students from overseas, from 24,998 to 95,607 during the period 1990–2000 (Kimber & Ehrich, 2015).

In Canada, tuition fees are an important source of revenue for higher education institutions. Due to both enrolment growth and tuition fee levels, higher

education institutions received over \$2.8 billion in 2010 compared with over \$670 million in 1994. In 2010, revenue from tuition fees was 1.2 times the basic formula operating grant, compared with less than 50 % of the basic formula operating grant in 1994 (Piché, 2015). Tuition fee increases for domestic students are regulated by the government, but fees for international student are completely deregulated, allowing higher education institutions to determine fee levels and compete for international students (Piché, 2015).

With only very few exceptions (e.g., Finland, where the constitution guarantees tuition-free education for all students), most developed countries have undergone changes similar to those described above. Commenting on the situation in the US, Sweden, and Germany, Johnstone (as cited in Woodhall, 2007) reported that “governments throughout the world... are embracing some version of cost-sharing” (p. 27).

Marketization, Privatization, and Corporatization

Over one decade ago, when more and more countries had been adopting and deregulating university tuition fees, people began to view free higher education as something of the past and unsustainable. In 2009, the higher education policy in the UK was transferred from the Department of Education to the Department of Business, Innovation and Skills, marking the beginning of a time when the higher education policy has been put directly under a regulated market mechanism (Choi, 2015). The goals of the new policy in the UK 2011 White Paper included cutting the government deficit while increasing revenue for higher education and improving the student experience by making higher education institutions more responsive to student needs, which resulted in a more market-oriented policy (Choi, 2015). In order to consolidate the consumer-led market mechanism, the 2011 White Paper sought to gain information on graduate employment and earnings outcomes, defining the higher education market as a proxy for the job market (Choi, 2015). Choi (2015) described this regulated market mechanism as typical of advanced capitalist economies. Such marketization of higher education was expressed more explicitly in Williams’ (2012) statement:

The 2011 reductions in public expenditure represented a fundamental shift in higher

education policy. Instead of being treated as a public service, higher education is now explicitly recognised as an activity that primarily benefits private individuals. The role of the state is restricted to quality regulation and the purchase of services where there is clear likelihood of market failure. (p. 54)

In Finland, universities became independent legal entities separated from the state as autonomous public institutions or as private foundations, and gained financial autonomy with fewer policy barriers to acquiring external funding and utilizing capital and financial assets. Finnish universities are required to include a certain ratio of non-university representatives in their governance bodies so that public accountability can be enhanced (Melin et al., 2015). Greece serves as a special case due to its well-known financial crisis. The country has been receiving external support since May 2010. The strict fiscal policies put in place in response to the financial deficit have had a significant impact on higher education, including an interest in restructuring universities through institutional mergers, cuts in public funding, and stringent financial controls. These neoliberal politics have not been well received mainly because they are aimed only at saving resources and ignore the chronic problems facing higher education the solutions of which cannot be put on hold (Zmas, 2015).

In Japan, the National University Corporation Act was introduced in 2004 to incorporate national universities. Upon incorporation, the vice chancellor of a university is endowed with discretionary powers, and the financial independence and autonomous administration of the university is thus enhanced. More importantly, incorporation changed the judicial status of national universities, from being government-owned public institutions to being independent public institutions (Hanada, 2013).

In Australia, the Nelson higher education reforms (2000–2008) aimed to transform universities into corporate entities which pursue profit, efficiency, and productivity. During that period, international students were fully recognized as a source of potential revenue and overseas teaching delivery was classified as “trade in services” instead of “aid” (Long, 2010).

Resurgence of Performance-Based Funding

Nisar (2015) associates the current prevalence of performance-based funding

with “a resurgence of what some scholars have called ‘new accountability’ at a global and national level” (p. 292). According to Shin (2010), the new accountability “is currently widely adopted in higher education management worldwide, especially as a mechanism for allocating operational and/or research funds to higher education institutions” (p. 48). The new accountability advocates “a refocusing on outcomes of campus activities rather than traditional focus on input or process” (Shin, 2010, p. 48). Performance-based funding is derived from such a global idea which seeks performance instead of traditional indicators such as resource inputs, administrative processes, or fiscal audits. Basing budget allocations on institutional performance, such funding aims at motivating institutions to perform better, enhancing both institutional autonomy and accountability (Nisar, 2015; Shin, 2010). The tendency seems to in part related to a changing ideology and mindset of people as a result of the interplay between complex social influences. For example, as Nisar (2015) observed, due to the changing socio-political landscape of the US, “there is an increased sense in the society that academia should no more be a ‘secret garden’, ” which to a certain extent provides a rationale for the government to “monitor” higher education more closely “to ensure that the academia is aware of its social responsibilities and externalities of its research” (p. 292). The rationale of performance-based funding is also attributable to the neoliberal concepts of efficiency, effectiveness, and competition. Hicks (2012) contends that the rationale of performance funding is that more government funds should go to “performing” institutions than to less successful institutions to provide better performers with a competitive edge and to stimulate poorer performers to improve. As Nisar (2015) put it forthrightly, under the new accountability regime and the performance-based funding mechanism, higher education “is no longer considered a ‘holy cow’ which cannot be sacrificed and faces tough competition in terms of budgetary allocations from other sectors” (p. 293).

In the US, higher education institutions only have a limited direct relationship with the federal government, and therefore, performance-based funding mostly operates at the state level, with Tennessee being the first state to introduce a performance-based funding system in 1978 (Nisar, 2015), and most states having at least one form of performance-based funding by the early 2000s (Shin, 2010). The specific policies vary significantly across the US, particularly the proportions of state budget that are allocated based on performance. For example,

in Tennessee, 100 % of the state budget for higher education has been tied to performance-based funding, compared to only 10 % of total state appropriations distributed on the basis of performance-based funding in Pennsylvania (Nisar, 2015). According to Rabovsky (2012), there is a common pattern in the indicators used for performance measuring, with the most commonly used indicator being graduation rates, followed by retention rates, outcomes for minority or low-income students, and number of degrees completed. Other less commonly used indicators include: cost efficiency, research productivity, external research funding, and diversity in the student or staff population. For example, in Tennessee, the main indicators used are all outcome-oriented, including degree completion, graduation rates and obtained research funding, and indicators of low income and non-traditional students are given more weight to acknowledge the effect of students' backgrounds (Nisar, 2015).

According to Nisar (2015), most European countries have introduced performance-based funding for higher education through which the state "can at least steer the academia from a distance" (p. 292). Using Germany as an example, Dobbins et al. (as cited in Nisar, 2015) pointed out that German universities have become more dependent upon the state due to financial needs in spite of their core value of Humboldt's principle of *Lernfreiheit* and *Lehrfreiheit* (freedom of teaching and learning). Citing a European Commission report from 2006, Magalhães et al. (2013) described the European Commission stance on funding for higher education as that "universities should be funded more for what they do than for what they are, by focusing funding on relevant outputs rather than on inputs" (p. 107). According to the European Commission report, as Magalhães et al. (2013) quoted, in Germany, France, the Netherlands, Portugal and the UK, the performance-based funding formula was perceived as "extremely important," and in the Netherlands and the UK, output-related criteria including degrees, credits, assessments, publications, and grants were also perceived as "extremely important." Magalhães et al.'s (2013) study compared the perception of the university community in 1995 and in 2008, and found that a contract-based approach (agreement between the government and institution over the performance target) was becoming more popular. According to Magalhães et al. (2013), in Germany, the contract approach is perceived as "extremely important" and in France as "important." Bakker (2007) compared the Netherlands and the UK on their performance-based funding policies. In the Netherlands, the funding

for teaching for universities is partly based on performance (half of the teaching budget), partly on a historic fixed amount, and partly on enrolment numbers. Performance indicators include the number of degrees conferred, and subject-related factors are taken into consideration, for example, a degree in economics and a degree in medicine will generate different funding. The historic allocation accounts for a substantial part of the funding to ensure financial stability for the institutions. In contrast, in the UK, the allocation of teaching grants was not performance-based, but research funding was essentially fully performance-based (Bakker, 2007), with the Research Assessment Exercise (RAE) launched in 1986 being an internationally adopted framework for performance-based funding for research (Hicks, 2012).

In Australia, an important achievement of the Nelson reforms (2000 to 2008) was the introduction of performance-based funding for teaching in universities (Long, 2010), which “was the first time that significant attention had been given to university teaching and was accompanied by substantial financial reward and public recognition for universities that had been judged to achieve excellence in teaching” (p. 455).

Strehl et al. (2007, March) summarized key features of performance-based funding compared to the traditional approach which include the fact that a performance-based funding mechanism attempts to “reward institutions for actual rather than promised performance” (p. 28), that the indicators of performance mainly “reflect public policy objectives rather than institutional needs” (p. 28), and that performance-based funding systems include incentives for institutional improvement. Strehl et al. (2007) commented that “by linking the funding to some measures of outputs or outcomes rather than inputs, performance-based funding focuses on a completely new perspective” (p. 28).

In spite of the strengths of performance-based funding compared to the traditional input-oriented funding, researchers have reported “mixed success” (Harnisch, 2011, June, p. 3) of performance funding due to some of the limitations inherent in the model. In the US during the period 1979–2007, 26 states trialed the performance-based funding model, but 14 of them discontinued the practice at some stage for various reasons (Miao, 2012; Harnisch, 2011, June). For example, due to the decline of state revenue during the early half of the 2000s, many performance-based funding systems were eliminated in state budgets, and this is related to the systems being considered “add-ons” rather than

essential (Harnisch, 2011, June). Researchers have addressed a number of other reasons, for example, lack of support from higher education institutions and other key supporters such as political leaders (Dougherty & Natow, 2009, May; Harnisch, 2011, June), program hazards (e.g., programs failed to align campus measurements with state goals or failed to account for campus missions), state funding cuts, and inaccuracies in data measurement (Harnisch, 2011, June).

Researchers also have reservations about the intended positive effect of performance-based funding on institutions' performance improvement. A main finding of a US-based study conducted by Shin (2010) is that the increase in institutional performance as a result of performance-based funding is "not noticeable." Similarly, Dougherty and Reddy's (2011, December) review of the US-based studies suggests that while performance-based funding leads to greater awareness by institutions of both state priorities and institutional performance, and increased level of competition for status among institutions, there is no solid data to support the claims that performance-based funding increases ultimate outcomes such as rates of retention and completion. Nisar (2015) concludes that "while some institutional level analyses have found positive impact of performance based policies, most national or international reviews of performance-based funding of higher education have shown limited success of such policies" (p. 293). Some researchers challenge the general perception that performance-based funding leads to competition for distribution of funds between institutions; for example, Hicks (2012) contends that "this is something of an illusion" (p. 251) and elaborates that it is the "competition for prestige" (p. 251) created by performance-based funding that creates incentives. Researchers have addressed some "unintended consequences" (Nisar, 2015, p. 294) or "undesired results" (Cretan & Gherghina, 2015, p. 18) of performance-based funding; for example, performance-based research funding is likely to over promote excellence and enhance control by professional elites, which in effect may compromise equity and diversity and other important values (Hicks, 2012; Nisar, 2015). Other unintended consequences include "compliance costs, narrowing of institutional mission, grade inflation, weakening of academic standards, restriction of student admissions and limited voice of academia in governance" (Nisar, 2015, p. 294).

Finance Innovations

Bakker (2007) identified two funding dimensions based on which governments choose their approaches to funding higher education: an input/output funding dimension and a demand side/supply side dimension. For the input/output funding dimension, input indicators refer to resources used and/or activities carried out by higher education institutions (e.g., the number of students enrolled, the floor area used), and output indicators refer to the performance of higher education institutions in terms of teaching and research (e.g., accumulated credits, number of degrees awarded, number and quality of research publications and patents issued). For the demand side/supply side dimension, if the institution is the recipient of government money either in lump sum or earmarked capital funds, then the funding is called supply-side funding, and if the student receives the funding (through grants or vouchers), or if the institution has to submit tenders for research grants, then the funding is called demand-side funding (Bakker, 2007). Finance innovation is used mainly to refer to new strategies to enhance the demand-side funding (Lacy & Tandberg, 2014).

In their article on policy diffusion among the American states, Lacy and Tandberg (2014) described some of the key innovative policies in the US that influence the way that higher education is funded, namely, tuition decentralization, voucher programs, the 529 savings plans and prepaid tuition programs, and broad-based merit aid programs.

In some states in the US, tuition authority has been decentralized from central state offices to allow institutions to set their own tuition rates. According to Lacy and Tandberg (2014), tuition decentralization is supported by the argument that “markets should drive prices and, once freed from artificial price controls, institutions would be able to compete on quality and students would ‘vote with their feet’ ” (p. 629).

One of the most influential voucher programs was the Colorado Opportunity Fund. Instead of appropriating directly to institutions, the Colorado state government uses the amount of money to establish a stipend system which is accessible to all lawful residents in the state. The stipend can be used by students to offset their total costs at the public higher education institution of their choice. This program, among others, provides a legally endorsed mechanism of competition for students among higher education institutions (Lacy & Tandberg,

2014).

The 529 savings plans are college savings and prepaid tuition plans named after Section 529 of the US Internal Revenue Code. With the college savings accounts, the principal is invested and not subject to capital gains tax. In many states, citizens are allowed to deduct contributions from state income tax. By subscribing to prepaid tuition plans, students buy future credits at current prices and therefore fix a certain tuition rate and protect themselves against tuition inflation. Both plans were designed to make higher education affordable to more people, and more relevantly, the plans allow students to choose the institution continuously, hence more intense competition for students is created among the institutions (Lacy & Tandberg, 2014).

Merit aid programs are designed to encourage particular behaviors such as student academic performance and enrollment in an institution within a state. They also increase higher education affordability and allow limited college choice (Lacy & Tandberg, 2014).

Funding for Internationalization

In some countries, a large sum of money is allocated specifically for success in global competition for research excellence as a national strategy. In Japan, there has been massive concentrated financial investment for this special purpose. Two funding projects were established to support internationally competitive research units over a five-year term, that is, 21st Century Centers of Excellence (2002–2009) and Global Centers of Excellence (2007–2014). Some funding projects have been aiming to produce world-class graduate schools and research institutes, for example, the 10-year World Premier International Center Initiative (Yonezawa & Shimmi, 2015). The Japanese government launched a number of support programs to facilitate the internationalization of universities. The Strategic Fund for Establishing International Headquarters in Universities (2005–2009) provided the selected universities with 10 to 40 million Japanese Yen every year. The five-year funding project, Re-inventing Japan (2011–2016) aims to develop internationally competitive talents among Japanese youth and to develop capacity for international engagement among Japanese universities (Yonezawa & Shimmi, 2015). In addition to the above initiatives, the Japanese government has established a budgetary system for improving the global

competitiveness of Japanese research universities by focusing on governance and management reform. Under this system, the Program for Promoting the Enhancement of Research Universities started in 2013 and was intended to support 22 universities for 10 years. The funds are not provided for funding specific research activities but allocated for supporting innovations in research strategy and management. Under the same system, the Top Global University Project started in 2014 and will last for 10 years (Yonezawa & Shimmi, 2015).

In Canada, the Canadian International Development Agency used to play a central role in supporting Canadian universities with their overseas development initiatives. It functioned as a “generous funder” that enabled Canadian universities to engage in large scale, long term international projects (Trilokekar, 2010). In addition, the agency also provided additional indirect support to international higher education and research through its funding of other units such as the International Development Research Centre (Trilokekar, 2010).

Influential Theories

The review has revealed that certain theoretical perspectives are particularly influential in the research into higher education funding.

New Institutional Economics

According to Strehl et al. (2007, March), the New Institutional Economics, characterized by concepts including theory of property rights, theory of transaction costs, and principal-agent theory, is pertinent to the design of the exchange relationships between the state and higher education institutions, such as the analysis of markets, organizations and contingencies of the economic relationships between them. Proper (2009) emphasized the neo-institutional premise that “institutions facing similar pressures will copy each other in a race to the top, obscuring individual institutional differences. Institutions of higher education tend to emulate the most prestigious institutions under any circumstances” (p. 151).

Nisar (2015) uses neo-institutionalism to explain the limited effect of performance-based funding on boosting an institution’s performance. Nisar (2015) elaborates that, according to neo-institutionalism, the limited effect of

performance-based funding should be “viewed in terms of path dependence of the field of higher education in general and of individual institutions in particular” (p. 295). Brennan and Shah (as cited in Nisar, 2015) illuminate the idea that “the effectiveness of any new formal constraints introduced by the performance-based funding frameworks is dependent upon their interaction with the informal constraints such as university mission, its institutional history and attitude of its faculty towards government control in general” (p. 295). Nisar (2015) draws attention to the “antagonistic attitude” of university academics and administrators towards performance-based funding which was worsened by the framework’s lack of input from the institutions prior to its introduction. Based on the neo-institutionalism perspective, Nisar (2015) concludes that performance-based funding was “bound to raise apprehension among some of the academics” (p. 295).

Tandberg (2010) utilizes new institutional economics as the basis of his analysis of the politics of state funding for public higher education institutions. Tandberg (2010) observes that most fiscal policy frameworks come out of the new institutionalism tradition. New institutionalism holds that “institutions define the goals, meaning, and actions of individuals who are interacting within governments, within a particular policy subsystem, or within other social settings” (p. 738), and therefore, institutions impact the decisions of various organizations, systems, or settings including the fiscal decisions.

Resource Dependence Theory

Resource dependence theory originates from management and organizational behavior disciplines, and it postulates that “the behaviors of organizations are shaped by the availability of external resources upon which the organization relies for survival” (Fowles, 2014, p. 273). Researchers have applied this theory to higher education funding (Fowles, 2014; Pilbeam, 2012; Santos, 2007). Fowles (2014) observes that resource dependence theory “presents a powerful alternative lens through which to explain the behaviors of public institutions of higher education” (p. 273). Fowles (2014) applies the perspective to the context of public higher education, and speculates that, given that institutions are indebted to the funding party, “a shift in revenue structure away from public appropriations and towards increased reliance on tuition payments has had

serious and perhaps unintended consequences for public universities” (p. 273). In light of resource dependence theory and citing Pfeffer and Salancik (in Santos, 2007) the political dimension of institutions and their relationship to the external resource environment is highlighted. They point out that to secure a sufficient level of funding, higher education institutions have to “alter their purposes and domains to accommodate new interests, sloughing off part of themselves to avoid some interests” (p. 127).

Resource dependence theory has also been used to analyze the limited demonstrable influence of performance-based funding on higher education institutions (Nisar, 2015). Taking the perspective of resource dependence theory, Nisar (2015) argues that “the success or failure of such policies depends upon the amount of money tied with such resources and the dependence of universities on such sources of revenue” (p. 294). Citing literature, Nisar (2015) hints that one reason for the limited effect of performance-based funding is that “only a small portion of state appropriations was tied with performance-based funding... [which] was not large enough to meaningfully influence institutional behavior” (p. 294).

Political Economy

Reflecting on a shift in higher education funding in UK, Saunders (2012) observes, “the English approach to university funding exemplifies a political economy which embodies a shift from public to individual benefits of higher education” (p. 397). Saunders (2012) elaborates that such a shift has some support from “a wider set of political values that privileges the individual over the social, individual choice over social provision ...” (p. 397).

Tandberg’s (2010) study features political influences on higher education funding policies, and pinpoints some of the “political variables” such as interest group ratio, political ideology, electoral competition, voter turnout, budget powers of the governor, legislative professionalism, uni-party legislature, term limits, governance structures, political culture, party of the governor, and party of the legislature.

Delaney and Doyle’s (2014) literature review addresses the political nature of capital funding for higher education. According to Delaney and Doyle (2014), there is a lack of funding formulas for capital budgets, which possibly indicates

that “capital budgets are more subject to the political processes of the state” (p. 438). Also, capital funding is directly allocated by legislatures instead of state higher education agencies, and this might indicate that “capital funds are allocated through a more political process than state general appropriations” (p. 438).

Based on the effect of community engagement on state appropriations in the US, Weerts (2014) concludes that “decisions about state funding for higher education are situated within a complex web of rational, political, and cultural-symbolic elements that exist at the state, governance, and campus levels” (p. 140).

Controversial Issues

The literature has presented a number of issues that are inconclusive and open to debate, in particular, higher education as public good or private good, academic capitalism and quality, educational equity, and the role of econometrics in funds allocation.

Public Good versus Private Good

Browne (2010) represents those who believe in higher education as a public good. According to Browne (2010), “those who benefit directly from higher education as graduates ought to make a contribution to the costs...the primary reason for this is that graduates benefit directly from higher education” (pp. 20–21). With regard to the fact that the public also receives benefits from higher education, literature provides some evidence that the benefit received by private individuals outweighs that received by the public. For example, OECD study (as cited in Browne, 2010) points out that in the UK the benefits of higher education received by individuals are over 50 % higher than the public benefits (p. 21). A 2007 US Census Bureau report (as cited in Kallison & Cohen, 2010) reports significant greater average annual incomes that higher education can create for graduates at different levels: High school graduates earn \$29,448, bachelor’s degree recipients \$54,689, master’s degree recipients \$67,898, and doctorate recipients \$92,863.

Browne (2010) highlights the difference between primary and secondary

education and higher education. According to Browne (2010), unlike primary and secondary education, “higher education is neither compulsory nor universal. Access to it is determined by aptitude (not everyone is qualified to enter higher education) and by choice (some people choose not to go even though they are qualified to do so)” (p. 21). Docampo (2007) refutes the arguments that “without state intervention the market would fail to provide adequate provision for all citizens [and that] higher education is a basic right and should therefore be free” (p. 370).

Despite the seemingly overwhelming arguments that higher education should be a public good, in reality, the sum of public opinions is far from conclusive. For example, Hart and Teeter’s survey in the US (as cited in Docampo, 2007) reports, “public opinion is divided about the status of higher education as a basic right or as something that has to be earned. What is most remarkable is that in spite of that divide, there is neither a generation nor a partisan significant gap on this issue” (p. 371).

Academic Capitalism and Quality

Kauppinen (2012) defines academic capitalism as “a wide-variety of market (e.g., patenting, and spin-off companies) and market-like (e.g., grants, university-industry partnerships, and tuition fees) activities and institutions that are used by faculty and institutions to secure external funding due to reduced public funding” (p. 545). Kauppinen (2012) explains that the theory of academic capitalism is concerned with not only commercialization of research but also other aspects of higher education institutions such as instruction and administration and the changing relations between institutions and their social environment. Academic capitalism is typically reflected in Browne’s (2010) proposal which is “designed to create genuine competition for students between higher education institutions” (p. 8), and Browne (2010) claims that competition will lead to improvements in teaching and research quality.

There is a public outcry concerning the consequences of academic capitalism. Marginson (2006) argues that higher education markets are dominated by institutional prestige and reputation rather than teaching quality and that students, parents, and employers rank courses by institution rather than the testimony of quality. As Marginson (2006) puts it, “when faced by choice between a

prestigious university with known indifference to undergraduate teaching, and a lesser institution offering better classroom support, nearly everyone opts for prestige” (p. 3). According to Long (2010), as a result of academic capitalism, the student has been regarded as the customer who pays for an educational service, and pleasing the student has become one of the aims of higher education institutions. Long (2010) wrote, “treating the student as a customer worries many academics who believe a greater proportion of students seek greater spoon-feeding and surface approaches to assessment, and are generally more likely to judge the quality of teaching in terms of value for money” (p. 460).

Educational Equity

The reforms in higher education funding have been linked to various equity issues. According to Toutkoushian and Shafiq (2010), in the US, declining state support for higher education coupled with the rise of student loans as a main tool of funding is preventing underrepresented and low-income populations from accessing higher education. In addition, shifting financial support away from appropriations and need-based financial aid towards merit-based financial aid is also disadvantaging underrepresented and low-income populations because they are less likely to qualify for merit-based aid (Toutkoushian & Shafiq, 2010). Choi (2015) contends that fair access to higher education should also include fair access to selective institutions that promise high income jobs. In a similar vein, Browne (2010) considers it unfair that students on courses with lower income returns are asked through a flat rate fee to subsidize those whose courses resulted in a higher income.

It is notable that the victims of inequity are not necessarily students from disadvantaged backgrounds. Dearden, Fitzsimons, Goodman, and Kaplan’s (2008) study has found that, taking into consideration of how payments balance out across the lifetime, for students from well-off backgrounds, the total additional costs of entering university under the new funding policy outweigh the total additional payments they received through the student support system, which is unfair to students who come from richer families but choose to be financially dependent on themselves.

Another equity issue relates to institutional differentiation. The market-driven funding system may lead to the market failure of those higher education

institutions that are unable to recruit students as a result of society's misconception of quality (e.g., solely reliance on prestige and ranking; Miller, 2010).

Econometrics: Is the Policy Calculable?

Some researchers emphasize the role of econometrics in policy making for higher education funding (Agasisti & Pérez-Esparrells, 2010; Dearden et al., 2008; de Oliver & Briscoe, 2011). Quoting Jean-Claude Eicher's article entitled *The Financing of Education: An Economic Issue?* Woodhall (2007) introduces a pessimistic perspective on the role of "economic thinking." Eicher observes that "changes in the sources of funding for education were, in most cases, the result of the financial squeeze on public budgets, rather than a coherent and systematic reflection on optimal financing," and attributes the lack of an active role of "optimal financing" to "shortcomings of the analytical approach of this problem by economists" (as cited in Woodhall, 2007, p. 7). Eicher compares approaches to student fees adopted by different countries, and asks, "Why have countries with comparable political institutions made very different choices?" (as cited in Woodhall, 2007, p. 7). Woodhall (2007) implies that this is partly due to "the incapacity of economists to offer a clear optimal solution" (p. 7).

Discussion

Several points need to be noted here. This review has been based on analysis and synthesis of the relevant scholarly literature published in the past 10 years (2006–2015). However, the time duration of the policies, theories and issues covered in the reviewed literature far exceeds the historical period of one decade. Since the systematic review has been intended to capture and delineate the main patterns and trends of policies and research in the field of higher education funding and important relevant research findings, this article has chosen not to focus on presentation of individual cases and description of details. To illustrate or exemplify key points generated from the review, the article has included certain cases and details. However, this by no means rules out the importance and relevance of other cases or details.

Since the review adopted a "currency" criterion of 10 years, it has

purposefully excluded direct referencing of any literature beyond the period, and has chosen to use a significant amount of secondary referencing to avoid missing important findings and other key information. For this particular reason, we need to argue that use of a number of secondary references in this article does not undermine the robustness of the review. Since we have compiled it in accordance with certain strict standards and have accessed a substantial amount of literature, particularly from academic journals, we are confident that the key patterns and issues generated from the review are reliable and reflect the real picture.

This systematic literature review has been intended to focus solely on the scholarly literature, particularly on articles published in peer-reviewed academic journals. Such a design is based on a proposition that the policies and practice of higher education funding have been sufficiently researched by the academia in the field. If a proposition is invalid, that is, there is a significant gap between what is practiced and what is researched in the higher education funding field, then the findings of this review can only claim to reflect a picture of the research *per se*, rather than both research and practice.

Contribution and Implications

This article makes an original contribution in that it constitutes the first study that applies the method of systematic literature review to the area of higher education resource allocation in general and higher education funding in particular. Compared to other literature reviews, it provides a more inclusive and panoramic overview of the research landscape in the area of higher education funding in developed countries. The legitimacy of the presentation of key patterns, theories, and issues is yet to be judged by the research community. Nevertheless, it is fair to say that this review has provided a valuable, new perspective in terms of observing and reflecting on what has happened in the field of higher education funding.

Given that the subject matter of this review is contextualized in developed countries, the findings of the review are expected to not only benefit developed countries in terms of providing research-based data for self-reflection, but also benefit developing countries that are at an early stage of exploring successful funding models and “best practices” for coping with the global economic recession.

Conclusion

This systematic literature review has revealed key patterns, theories, and issues in higher education funding in the past few decades. The key patterns include funding reduction and tuition fee increases, privatization and corporatization of higher education institutions, performance-based funding, and funding for internationalization. The theories that are specifically influential to higher education funding include new institutional economics, resource dependence theory and political economy. The issues that are subject to further debate are: higher education as a public good or a private good, academic capitalism, educational equity, and the role of econometrics. The impact of these findings is yet to be proven; nevertheless, this review at least provides a valuable and new perspective due to its unique method.

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