Working Papers in Higher Education Studies

Higher education in early-stage developmental states: lessons for beginners

Ayenachew Aseffa Woldegiyorgis

Research and Knowledge Management Office, St. Mary's University College, Addis Ababa, Ethiopia.

Contact: ayenachew@gmail.com

Bio: The author is a graduate of the Masters in Research and Innovation in Higher Education (MaRIHE) programme organized by the University of Tampere (Finland), Danube University Krems (Austria), Beijing Normal University (China) and Osnabrück University of Applied Sciences (Germany). He is currently a Senior Researcher at St. Mary's University.

Suggested citation: Woldegiyorgis, A. A. (2015). Higher education in early-stage developmental states: lessons for beginners. *Working Papers in Higher Education Studies*, *1*(1), 1-22.

The article is available online at: http://www.wphes-journal.eu/

Higher education in early-stage developmental states: lessons for beginners

Ayenachew Aseffa Woldegiyorgis

The Southeast Asian developmental states of the past century have shown a strong linkage between higher education strategies and economic growth. With the goal of drawing lessons from which those countries that are presently pursuing the tenets of the developmental state can learn, this paper attempts to set out the common characteristics of higher education in early-stage developmental states. Drawing on literature from the heydays of the Southeast Asian developmental states, the paper identifies strong state control, central admission process, emphasis on technology transfer, diversity of institutions, priority for natural sciences, large scale expansion, and other non-economic goals as the basic attributes of higher education at the early early-stage of their development.

Keywords: higher education; developmental states; early-stage development.

Introduction

The developmental state model has recently drawn a lot of attention as a means to achieve accelerated economic growth in the least developed countries of the world, particularly in Africa. The 2011 joint publication of the United Nations Economic Commission for Africa (UNECA) and the African Union (AU) – *Governing development in Africa: the role of the state in economic transformation* – epitomizes the momentum the concept has gained. The document advises African countries to adopt the (democratic) developmental state model as a general framework for economic transformation. Consequently there is a growing volume of literature on different aspects of the developmental state concept and how it could fit in the current context of the least developed countries. In the same vain, this paper attempts to conceptualise the distinctive nature of higher education systems and institutions in developmental states in general, drawing on literature from the 1980s and 1990s.

The notable experience of the Southeast Asian region between the 1970s and 1990s,

which was characterised by rapid economic growth through industrialization, appears to be the most suitable example for contemporary early-stage developmental states. The 1990s Asian Economic Crisis called for significant economic and political reforms in many countries of the region. Several preconditions attached to the IMF's rescue plans imposed crucial neoliberal elements of politico-economic arrangements, which undermined the predominant statist alternatives (Hayashi, 2010). Hence, considerable change has occurred and the countries have progressed a lot since, resulting in substantial alteration in the nature and functioning of the developmental state. Similarly, the higher education systems of these countries have evolved significantly; so much so that today, rather than focusing on promoting industrialisation and training technical experts, they have their eyes on fitting in with global trends in higher education - e.g. the global university hub initiatives of Singapore and Malaysia, the close to 100 per cent access rate of South Korea, the world-class universities project of China, and the like (see: Marginson, 2011). These higher education systems have come a long way. Thus, their current experiences are not relevant for infant systems, which pursue starkly different goals and have different challenges. This explains why this paper needs to focus on literature from two or three decades ago.

Higher education and development strategies

Some of the features and roles of higher education in developmental states are similar to those of traditional universities in the west, but with a different level of emphasis or unique combination of goals and functions. In this regard, taking a brief look at what Castells (1993, p. 80-82) identifies as the traditionally major functions of universities provides a contrasting perspective to the understanding of higher education in developmental states. Castells sees universities as important institutions in all societies, throughout history, with basic and implicit functions to perform, regarding respective roles given to them by society by means of political or economic influence. The four major functions he identified, at a theoretical level, manifest to varying degree, reflecting the predominant expectations of the respective higher education systems in different historical periods and different societies.

First, universities have historically been prominent players in the formation and dissemination of ideology. Rooted in the European church-based universities, as well as the more liberal schools of the Anglo-Saxon tradition, universities continue to serve as

ideological apparatuses, regardless of their commonly referred to ideology of ideology-free. Second, universities produce dominant elites in society – including the selection, socialisation, networking of cohesion, and the delineation between those elites and the rest of society. While the British system, built around the unquestionable dominance of Oxford and Cambridge universities, provides the best example of such a role. The Ivy League universities in the US and the University of Moscow in the former Soviet Union provide similar cases and reflect how the process of elite formation is adaptive to cultural and historical contexts of different societies. The generation of new knowledge, the function of the university that is today taken for granted, is the third role that emerged, and became very apparent with the technological revolution influenced by the US science-oriented universities and the consequent model of economic growth. In several countries of Europe, rather for a long time, research was separated from higher education, being undertaken by national scientific research centres. The German model, however, provides an exception to this by harbouring a more flexible interaction between the teaching and research functions of universities.

The fourth function of the university, perhaps the largest and most important in modern times according to Castells, is professional training for the bureaucracy. This basic function of higher education systems has a wide coverage, stemming from the time of higher-level schools specialising in the training of church bureaucrats, to the Napoleonic model that is the basis for most European university systems, to the traditional Chinese university system devoted to preparing students for imperial examinations and for state bureaucracy – which in turn influenced the Japanese and Korean university systems. This function of training the bureaucracy expanded in scope and in specialisation when the process of industrialisation required training large numbers and diverse populations. Additionally, the expansion of basic services, such as health and education, demanded unprecedented numbers of teachers and medical professionals all to be trained by higher education institutions. Simultaneously, universities had to expand and strengthen themselves to meet the growing demand for training, thus becoming large consumers of their own production.

The professional university that focused on training the labour force was particularly successful in those countries of the industrial world; it could then be aligned in such a way to be instrumental to the economy. Indeed once the potential of universities to

promote development was recognised, many countries pursued building 'technology institutes', 'research universities,' and 'university-industry partnerships' (Castells, 1993, p. 83). Therefore, after focusing for centuries on the ideological and elite formation functions, universities, policy makers and the private sector in many countries turned to realising and using the higher education system as a force of production in the development of the industrial and informational economy.

However, sceptics argue that there is a risk of failure and even a potential danger in this new view about the role of universities. Peper (1984), for example, cites the failure of universities in planned economies of socialist countries, where they were made completely subordinate to the needs of the labour market. Because of the rapid technological change, universities were obliged to train technical professionals to adapt constantly to new technologies. Similarly Castells warns that when universities are too closely tied to industry, they may lose sight of their "overarching role vis-a-vis the short term interests of particular segments of the industry" (1993, p. 82) they are attached to.

In spite of the scepticism, a volume of literature shows that higher education systems were successfully integrated with economic policies resulting in rapid economic growth, particularly in the Southeast Asian newly-industrialised developmental states of the second half of the twentieth century. Attesting to this, Altbach (1992, p. 159) concludes that higher education institutions in those countries are "not only central to educating people for increasingly complex and technologically oriented societies, they also provide the research base that will permit these societies to create ideas and translate them into usable processes and products".

The countries have successfully transformed their economies by shifting from agriculture to manufacturing, and gradually moving from import substitution to export-oriented, selective, high-technology, heavy industries. To this end they pursued 'corrective and structural adjustment' targeting a move away from low-wage, low-productivity and unskilled labour-intensive activities to high technology and high value-added activities that require a highly trained work force. This adjustment policy has been facilitated by well thought out and carefully designed far reaching policies for manpower development, education and training, to which higher education was of paramount importance (Singh, 1991).

Therefore, the success in this regard, among other things, is attributable to the existence of a relevant and properly directed higher education system that is well aligned to economic policies. Such a higher education system can be described and understood by certain features including, but not in any way limited to, the following.

a) Strong state control system

The developmental state intervenes in and closely controls its higher education system to make sure that higher education development and strategies are well coordinated with other aspects of its social and economic policies. This centralised system, commonly referred to as the state control model, calls for the centralisation of the decision making process and a significant degree of control over both the choice and implementation of a given alternative path (Ransom et al., 1993). Such a system, in effect, leaves higher education institutions with a minimum level of autonomy.

The state control model is traditionally linked to continental Europe, where higher education institutions were established and almost entirely financed by the state. The French higher education system, which is characterised by centralised bureaucratic control exercised by the Ministry of Education, provides a typical example. Almost everything in the higher education system falls under the purview of the ministry - access policies, degree requirements, curricula, the examination system, the appointment and remuneration of academic staff, and so on. In the continental model, state control coexists with the strong authority of senior, chaired professors, who have considerable power at the lower level. Therefore the power structure of such a higher education system is dominated by the interests of these two actors, representing alternative ends of the system (i.e. top and bottom), with weak institutional administration in the middle. Indeed, the state not only controls the appointment of the chair holders, it also uses the higher education system to meet its manpower needs in the government bureaucracy and the labour market (Van Vught, 1995). Therefore, practically, the power of the state prevails even over that of the senior professors, who are influenced by the decisions of the state.

The state control model has been widely criticised for a number of shortcomings. This model is said to be less successful in stimulating and effectively supporting innovation,

because it's underlining assumptions, which favour more centralised control, are at odds with some of the fundamental requirements for an innovative higher education institution, such as high professional autonomy, organisational fragmentation and decentralised decision making. It also fails to acknowledge that in a complex, multi-level system specific knowledge is more easily and cheaply acquired by lower-level decision making units. Inflexible and detailed oversight procedures and hierarchical control lead to unnecessary and counter-productive bureaucratic systems and can stifle innovative potential at the lower level. Even worse, if power and knowledge are at two different ends, the unit with the knowledge can use its expertise to evade and counteract orders from the powerful (Ransom et al., 1993; Van Vught, 1995).

In spite of wide scepticism and critique, there are some countries which proved the state control model successful in the promotion of rapid economic growth, if well aligned with overall developmental goals and properly coordinated with other policies and sectors. The developmental states of Southeast Asia provide examples of such success. Typical in this regard is the case of South Korea, which as part of its national education system introduced a tight rein on all developments in higher education. However, despite considerable pitfalls, strains on students and parents, and denial of opportunities for individual personal development, the education system of South Korea managed to significantly contribute to the country's economic progress (Morris, 1996).

The same can be said for Singapore, Malaysia and Taiwan, which not only generously financed their higher education systems, but also engaged in a wide variety of activities ultimately determining what they wanted their higher education to be like and where it was headed. The high degree of coordinated control exercised by the governments of these countries ranged from shaping the overall legal framework through legislative enactment to the specific tasks which otherwise fall under the jurisdiction of university management. Applied in different composition in different countries, the decisions made/influenced by a central state body include: regulating the establishment of new departments or colleges, setting student quotas for institutions and disciplines, shaping the curriculum, stipulating the number of courses, determining the combination of subjects to be taken, encouraging students to enter fields where there are shortages, the appointment of presidents, determining the number of teachers per faculty, the teaching load, tuition fees and faculty salaries, etc. Also, in the earlier stages of their

development, governments took measures to encourage more students to go into vocational schools. Later, with the concern to upgrade the labour force to meet the demand of the transforming economy, they eased their policies but still favoured technical fields than the social sciences and humanities (Singh, 1991).

b) Centralised admission procedures

The desire to ensure that the higher education system supplies the required number and mix of graduates to the labour market explains why developmental states get involved in the detailed control of higher education institutions. Admission is one such area where government involvement was crucial, even in private academic institutions. Central government agencies, such as ministries of education, were directly involved in determining the admission process to higher education with three purposes in mind: ensuring quality of higher education, making up for social injustices, and determining how many people go in to each discipline in accordance with the needs of the economy.

The growing economies of the developmental states were paralleled by a rapid expansion of their higher education systems. As the countries move from small-scale manufacturing and import substitution to medium and heavy industries and export-oriented production, the demand for quality graduates was increasing as well. Hence, quality assurance emerged to be one of the common challenges in those systems. In the 1970s when China replaced its admission policy of national examinations based on academic criteria to one that rather considered family background and political criteria, the result was that its universities were crippled and its economic growth was slowed for about a decade. In the 1980s, China restored its rigorous national academic examinations as part of its effort of modernisation and quality improvement (Ransom et al., 1993). This illustrates that admission procedures have implications for the quality of education, and that quality, in turn, influences the economy.

If higher education is to advance a society by promoting its ability to innovate with the aim of achieving economic and social development, then due care has to be given to the issue of quality. And the simplest way to improve quality, Patel (1993) suggests, is to have very high admission and instruction standards. By doing so, multiple goals can be achieved simultaneously – limiting the rate of expenditure increase in higher education;

concentrating resources in few institutions, which in turn facilitates easy maintenance and improvement of quality.

With this notion in mind, many developing systems used centrally administered and strict higher education admission tests and/or national systems of assessment that sought competitive ways to identify the best of every cohort to join higher education (Morris, 1996). The downside of this method is that it influences how teaching at secondary schools is conducted. Schools having their eyes on helping their students succeed in the entrance exam, almost exclusively focus on teaching the selection test rather than teaching the broad range of educational objectives prescribed in the curriculum. Those who failed the selection test often do not get alternatives in to the higher education system or employment causing waste of resources and human potential. Many of the developmental states later, upon realisation of the problem, introduced admission policies to higher education that consider, at least partly, secondary school work rather than solely relying on a one-shot exam at the end of the cycle. Such a broad-based admission system targets changing teaching at the secondary school level to be more relevant for those who go on to higher education as well as for those who move on to other forms of training and /or employment (Ransom et al., 1993).

On the other hand, such highly selective systems, which favour those who are affluent enough to go to better private schools and who can afford private tutorial to succeed in entrance exam, hence, tend to be elitist and add up to social injustice by widening the rich-poor gap (Patel, 1993). Equity in access is a more philosophical and political issue with sophisticated determinants. Therefore, each country, considering its own specific situation, will have to determine the optimum balance between social equality goals and economic growth goals. Malaysia could be a good example facing such a challenge, where a small higher education system was viewed as equivalent to quality in the 1970s and 80s. Available spaces were restricted and selection policies were supposed to select the top performers. However, over time the principle of social equity superseded the notion of quality in the public sector, where quota-based national selection policies were superimposed on meritocratic criteria hoping to redress perceived social injustice (Ransom et al., 1993).

Admission also served to determine how many and who go to what field of study as required by the intended economic strategy (Morris, 1996). Access to higher education institutions has been driven more by objective criteria than by individual need, and enrolment levels have been tied to long-term manpower plans. Governments have actively influenced career choices and encouraged students to enter fields in which there were shortages, while they have stayed away from those that have become competitive enough (Singh, 1991). In spite of the successes recorded in the developmental states of Southeast Asia, this method ultimately undermined individuals' rights to choose their careers and to make their own personal development plan.

c) Major emphasis on technology transfer/learning from others

In the second half of the 20th century, technology revolutionised economic production processes and outcomes, leading to an unprecedented increase in the importance of global markets to national economic development. Countries that fail to cope with these advances will become increasingly marginalised, and their economies will either stagnate or decline (Ransom et al., 1993). Hence countries tried all means possible to keep up with the changes in technology and global markets. In this effort, the intellectual skills of the labour force, especially in science and technology, have become the major determinant. Because the level of use of advanced technologies in an economy is highly dependent upon the general level of education and culture of labour, there is a growing connection between people's intellectual skills and their countries' development potential (Carnoy et al., 1982 cf. Castells, 1993).

Science and technology play a critical role as sources of economic productivity and competitiveness in the contemporary global economy. Emphasising this, Castells (1993) analogised the importance of science and technology systems in the new global economy with the role of factories in the industrial age. In short, technology has emerged as an important development tool, while it is one of the most unevenly distributed capacities in the world. As a result, access to technology and/or technology transfer has come to be at the core of development policies.

Traditionally, the unindustrialised countries were dependent on the industrialised ones, largely being users rather than producers of science and technology. However, the successful developmental states realised that they cannot, in the long run, rely on others

to produce all of the research that is needed for their emerging technologically-based industries. At the early stages, they opted for un-systematised and unreliable methods where technological inputs were purchased from abroad or were sometimes simply copied without regard to the legal niceties. Countries like South Korea, Taiwan, Singapore and China were all violators of copyright, trademark and intellectual property, until each came to the point of adopting a more systemic approach, including legal frameworks (Altbach, 1992). They started developing their own scientific system and academic institutions as well as building a research base in order to effectively analyse, interpret, and use advanced research and technology from abroad.

Different countries used different combinations of methods and strategies of technology transfer and development to be able to link up with the globally advanced production system. Nonetheless this required a basic structure that can facilitate the process of receiving, supporting and using the know-how being transferred, which can be (Castells, 1993, p. 70) summarised in the following five elements:

- An adequate system of communication and telecommunication linkages at the world level.
- An integrated productive structure, where suppliers and markets operate, at least for the advanced segment of the economy, at a similar technological level. In other words, a modern firm without an adequate network of suppliers and ancillary firms can only be an enclave, unable to contribute substantially to the country's development, and ultimately unable to be competitive.
- A skilled labour force of workers, technicians, engineers, and scientists able to adapt their skills continuously to the fast pace of technological change.
- A research system able to assimilate the discoveries taking place in the most advanced areas of the world, adapt them to the country's specific needs, and gradually be able to participate in international scientific networks.
- An institutional system able to link scientific research, technical applications, and training of the labour force in the context of a process of technology transfer.

Without these conditions fulfilled to sustain an endogenous process of technological development, the exogenous impulses received through technology transfer will not be assimilated.

Clearly, in this process, higher education has a crucial role to play in training the labour force and generating knowledge and research (Ransome et al., 1993). In rapidly industrialising countries higher education institutions have been acknowledged for contributing significantly to not only assisting the technology transfer and adaptation but to the development of endogenous technology as well. They provide the skilled labour force that is needed for the development as well as transfer of technology, both in terms of specific skills (for example, engineering) and in terms of general learning ability; they generate the scientific foundation and the research and development activities (except for Japan, where research and development was more concentrated in the private sector businesses than in higher education); they adapt innovations produced in other contexts and for other needs; and they perform such tasks in close connection with the industrial structure.

d) Diversified institutions

Higher education systems of developmental states are diversified on the basis of what specific function they perform and what needs they have to satisfy. A majority of institutions are devoted to training bureaucrats and technocrats and preparing the supply of professionals for the dynamic needs of the economy, while a few, high-quality institutions are the breeding ground for the elites of the political leadership and policy makers. Similarly, in terms of their engagement, many of the institutions were primarily concerned with training (and teaching), while a few selected institutions with the brightest of staff and students were set for scientific leadership through research. It is also discernible that there were distinctions between comprehensive and specialised institutions, the later ultimately dedicated to a certain small area of specialisation but with greater intensity.

In many developing countries, the recruitment of social elites, first for the colonial administration and later for the new political system created after independence, was a major function of higher education systems. Because of instability of political regimes in these countries, universities emerged to be a battle ground of conflicting ideologies, each attempting to win over the other in the hope of securing autonomy to lead and shape the nationalist ideology. In effect, universities were dominated by politics, which combined their ideological function and the formation of social elites. However, when countries were faced with the task of development in the modern and integrated global

economy, the need to train skilled labour gave a new impetus to universities as educational institutions (Castells, 1993). In the rapidly industrialising developmental states, the traditional function of teaching continued to be important, as a significant proportion of jobs in the modernising economy required advanced education. Additionally, the increasingly diversifying economy needed a wider range of skills and the universities were supposed to provide training for a growing range of specialties. Thus the universities were "called on to furnish a much wider range of programs, departments, and interdisciplinary units to provide the education" that the economy needed (Altbach, 1992, p. 145).

Though the size and structure of higher education systems in developmental states varied, certain common features were observed. Upon the realisation that it would not be possible for all applicants to go to high-tech and capital-intensive higher education institutions, South Korea and Taiwan adopted a two-tier system; one lower level, low cost and localised tier and one high level, specialised tier. They successfully expanded and diversified their HE systems to meet national skills requirements as well as to satisfy the public demand for access to higher education, and the possibility to move from one level of higher education to another. These countries had a more open entry system, allowing a large number of people to join higher education in general, but, within that system, a small group of high-prestige and difficult-to-access publicly funded institutions emerged with the task of producing the best manpower to industry and research. Malaysia and Singapore, on the contrary, opted for a small, elitist higher education system almost fully financed by the state. They maintained a grip on access, allowing in only a small number of applicants with the best results (Singh, 1991). Graduates of such institutions have a better chance of employment at the highest levels of the occupational structure, while there were a small number of polytechnics engaged in training technicians. Both groups of countries were selective and encouraged a small elite group of scientific manpower: one through limited entry and the other through highly contested entry into the key institutions.

Although universities were vital, both in terms of their teaching and research functions, the extent to which they were at the centre of research and development varied between the countries. For instance, the National University of Singapore was at the centre of undertaking research in the areas identified by the state as priority. With a large number

of highly qualified staff and a number of specialised institutions and departments focused on research, it was the largest scientific institution working in close collaboration with local industries (Pang and Gopinathan, 1989). In Malaysia the setting up of the Institute of Advanced Studies as well as the development of specialised science and technology universities contributed to the improved role of universities in development-oriented research. The universities themselves grew more interested in improving their research profile and a number of interdisciplinary and multidisciplinary collaborative research initiatives, as well as consultancy agencies, flourished within the university system (Singh, 1989).

In Taiwan, scientific research was the task of the universities and the Academia Sinica. Though both basic and applied research were undertaken by universities, the amount of money the universities received from the National Science Council was often not sufficient for large-scale engagement. Only the few prestigious public institutions were actually engaged in research at a meaningful level (Hsieh, 1989). In South Korea the private sector with large industrial corporations played a significant role in research and development. The government tried to increase the engagement and overall importance of universities in research through the establishment of the Korean Advanced Institute of Science and Technology, which was to provide leadership in the training of elite scientists as well as in research (Sungho, 1989). Additionally, a few top institutions, such as Seoul National University, Yonsei University and Ewha Women's University, were nurtured and provided with relatively more facilities and funds than other institutions. They had better qualified staff, more finance for research, better research environment and they were encouraged to do research and publish (Singh, 1991).

All the countries seen above have attempted to improve the research engagement of their universities through strengthening some selective universities or through establishment of specialised research institutions. However sceptics doubt the usefulness of relying on non-university institutions for research and development. While it seems more difficult to control universities, they provide a more appropriate combination of training and research in the long run. Altbach (1992) sees universities more viable for the job because the traditional strength universities have, though is not of immediate usefulness, is to provide a solid foundation for advanced training as well as for applied research.

e) Focus on science and technology as priority areas

Considering the availability of limited resources, countries need to identify and pursue certain areas of high priority consistent with their socio-economic needs and integral to their development plans. In doing so, they determine their comparative advantage, choose between different fields and disciplines, and foster links between research and development (R&D) carried out by universities and by the other private and public productive sectors (Ransome et al., 1993). Such a coordinated approach, emphasising more efficient use of resources in high importance areas of research and fields of study, enables the full exploitation of economic and social benefits of technological innovation.

However, determining the priority areas in higher education and coming to a functional plan is not an easy and straightforward task. The priority issue cannot be solved in 'either – or' terms since skills are complementary to one another and socio-economic needs are many and diverse. Nor can it be decided by calculating rates of return, since social returns are difficult to measure and compare, while private returns are not that relevant in forging overall development strategies as they are in financing higher education (Patel, 1993). Given the uncertainty involved in making detailed manpower plans, Patel further states that setting priorities in higher education can be done based on a common-sense, trial-and-error approach, by learning from experiences of other systems and from debates among professionals.

In spite of the scepticism, there has been an accumulation of literature on successful cases of developmental states using prioritisation of science and technology fields in their higher education system towards economic development goals (Altbach et al, 1989; Castels, 1993; Singh, 1991; Ashton et al, 1999; Patel, 1985; Amsden, 1989). Though it has taken effect in different ways, the emphasis on science and technology was a common phenomenon. Controlling and manipulating the admission process, establishing a government agency in charge of the promotion of science and technology, enacting various laws, opening many more science and technology universities, altering student choices at lower level, establishing high-class science and technology institutes, providing better incentives for those who prefer to join those fields (both at undergraduate and graduate levels), providing more generous grants to research

initiatives in priority fields are some of the techniques applied in different systems, to name but a few.

As was the case for Japan, earlier economic growth of the other Southeast Asian developmental states relied on low-tech, low-wage industries. For example, in the case of South Korea, steel, shipbuilding, textiles, and relatively unsophisticated consumer products exemplified this stage of development. As the economies grew, and faced with competition from countries of similar impetus, those countries moved on to more high-tech and value-added products. Singapore was credited (Altbach, 1992) to have realised the need for this kind of model of development, and to systematically position higher education, research and training as the key in its economic strategy.

Furthermore, as industrialisation became more prominent, the prioritisation of science and technology in general terms was raising the need for specialised engineers (as opposed to general natural scientists) and technicians to support their work. In this regard, there has been an evident relationship between the preparation of technology students and the level of industrialisation (Singh, 1991). Examples are seen in South Korea, Singapore, Taiwan and, to a lesser extent, Malaysia, who all focused on their prestigious universities and institutions for the production of engineers relevant for targeted industries. South Korea and Taiwan mainly concentrated on multiplying their electrical and electronic engineering departments and students, while Singapore focused on training specialists in computer hardware and software, and in biotechnology. In the meantime, the higher education system continued to diversify the training of large number of students in various technology fields at junior colleges and polytechnics. The graduates of these institutions were generally expected to work at a practical level in industry, while small proportions get the chance to move on to institutes of technologies for advanced and specialised studies.

From the stand point of the comprehensive scientific university, critics doubt the long-term benefit of such an approach of emphasising on selected institutions and selected fields of study. It has been argued that though this approach is useful to achieve the short-term demand for training of some technical personnel in certain specialties, it fails to meet the ideals of the scientific university. It ignores one of the essential elements in building universities as centres of innovation and discovery – which is the “cross-

fertilisation of different disciplines (including the humanities), together with their detachment from the economy's immediate needs" (Castells, 1993, p. 75). Further, if the scientific community is not free to choose the goals of scientific research they want to pursue, there will hardly be innovation and discovery.

Similarly, the strong emphasis on science and technology has resulted in the neglect of the 'soft' fields of social sciences and humanities; these fields have a significant role to play in understanding the context within which science attempts to improve life. In the complex social environment, emerging trends and problems need to be scientifically analysed and interpreted to be constructively tackled. For example, population trends have a great deal of impact on the labour market and the economy, calling for demographers and sociologists to make interpretations of such developments. Scholars in the humanities also help in the understanding of culture, literature, and history in rapidly changing societies. Altbach (1992) has argued that in some ways the social sciences and humanities can be seen as even more important than the hard sciences because "it is impossible to rely on external knowledge for analysis of society and culture" (p. 147). In other words, he warns that it would be a mistake to downplay or ignore these fields.

f) Large scale expansion

In the second half of the twentieth century, higher education saw significant expansion in many developing countries. In post-colonial countries the new nationalist governments considered the creation of new universities and the surge in student enrolment as one measurement of development, which in return secured them legitimacy. However much of the expansion took place in the traditionally popular fields of study (i.e. social sciences and humanities), and the major task of the higher education system remained the recruitment and training of political and administrative elites, on whom the political system relied (Morris, 1996; Castells, 1993). Furthermore, in the more socially-oriented regimes, careers in the social services, particularly education and health, became increasingly important, drawing more popularity and more demand for training in these fields.

Particularly in developmental states, the rate of expansion was significant and purposefully directed. Recognising the valued contribution of higher education in

producing the high-level manpower desired, governments were willing to make substantial investment in the sector. China's case, which saw the building of 500 new universities in a five year period during the 1980s, is an exceptional example (Ransom et al., 1993). Similarly, but more steadily, in the 1970s and 1980s, the share of expenditure in higher education progressively increased as percentage of both GNP and total education budget in several countries. This increase in expenditure is evidenced in the increase in enrolment: between 1970 and 1980 South Korea and Malaysia experienced an annual increase of about 20 per cent, while Singapore and Taiwan had 6.2 per cent and 6.8 per cent respectively. Similarly, in the 1980s, annual growth rates of 14.8 per cent in South Korea, around 13.3 per cent in Malaysia, 12.4 per cent in Singapore and 5.6 per cent in Taiwan were recorded (Sighn, 1991, p. 390).

This remarkable expansion has been explained by three primary factors. First is the deliberate action of governments to expand higher education as part of the manpower plan in their overall development blueprint. As evidenced in the above examples, governments decided to pump more and more money into expanding and restructuring their higher education systems. Second, as economies grew and the private sector expanded, the value of a higher education degree as a way to compete in the labour market increased. This garnered more commitment by individuals, who even went abroad to study when they could not gain access at home. And third, as the economy continued to grow, the middle-income class keeps growing and a new class of professionals emerged, who not only could afford higher education but also wanted the best higher education for their children (Altbach, 1992). The expansion in turn has made higher education institutions large consumers of highly educated staff, adding to the demand side of the equation.

It is common that in many developing countries governments finance higher education, though some institutions funded by different organisations (e.g. religious and professional) run parallel with the public system. As expansion of higher education continues, there will be more pressure on governments causing strain in resources, which at some point makes the idea of continuing with subsidising higher education more and more unrealistic (Ransom et al., 1993). In the interest of easing the burden on the public, countries have devised various strategies to reduce or shift the cost of maintaining their higher education systems, while not seriously compromising its

developmental contribution. The two most common broad alternatives are to introduce cost recovery methods and to encourage privatisation.

Resting on the argument that higher education provides both social and private return, cost recovery calls on the individual to share the cost of higher education in the proportion of the private benefit. More state subsidies shall be given for those fields that produce greater societal benefit, while those fields that basically produce private benefits have to be paid for by the student. However, the uncertainty involved in trying to determine the private (or social for that matter) benefits of a higher education degree poses the biggest challenge. Additionally, Patel (1993) suggests the alternative of using different sources of income is to enable higher education institutions to finance part of their expenses, which is also widely practiced - evening classes, correspondence courses, private diplomas, a burgeoning of all kinds of tutorial arrangements, consultancy services, sale of products, etc.

Another alternative financing mechanism is the private funding and provision of higher education. South Korea and Taiwan provide good examples whereby a major expansion process was carried out by the private sector. Government involvement, though vital, was considerably minimised to directing, encouraging and facilitating the private sector. The universities and colleges in the private sector, however, were almost without exception oriented towards teaching, undermining research (Altbach, 1992). To compensate, governments built national universities and institutions financed by the state and focused on research. It shall be noted that a developmental state needs to make a careful consideration of how much and what kind of privatisation is necessary; and who should pay, how much, when and for what kind of higher education.

g) Non-economic functions/goals

Higher education institutions are part of the international knowledge system, and serve as channels to keep society informed about what is happening in the wide world of science, scholarship and research. They also play an irreplaceable role by doing research into historical, cultural and social developments – issues considerably important in countries that have undergone significant changes. Higher education institutions also constitute the knowledge base of society, which in essence is the source of ideas and immensely contributory for countries under transformation (Altbach,

1992). In other words, as Castels (1993) has put it, higher education institutions have diverse purposes that cover a wide range of social, economic and political aspects of society. Over different historical epochs in different societies, higher education institutions have played varying roles relevant to the respective circumstances.

During colonial periods, regardless of the higher education model that prevailed, colonial authorities desired loyalty of universities, their students and graduates, and used different techniques to ensure this and to prevent dissent. In spite of this strong grip, universities were mostly the sources and breeding grounds for social and political changes. University intellectuals were key in nationalist independence movements (Altbach et al., 1989). After independence, the new nationalist leaders used higher education institutions as instruments not only to establish legitimacy but also to create national integration and development (Ransom et al., 1993).

Even for developmental states, where economic growth was an agenda of the highest priority, higher education was maintained not only for its economic benefits. In fact, nation building was an important issue in Southeast Asian developmental countries such as South Korea, Singapore and Malaysia. Hence, higher education has been seen as a vital component of this process, targeted towards the overall socio-economic and political development of the countries (Abe, 2006; Singh, 1991). The `strong states' used (higher) education to foster a strong sense of social cohesion and political identity. Besides creating a basis of legitimacy for governments through improving economies, education, through competitive and meritocratic orientation, provided individuals with the opportunity for upward social mobility regardless of class, religion and other social groupings (Morris, 1996). Higher education institutions are therefore charged with the responsibility of not only supporting the economy and changing technologies of production, but also improving social and cultural circumstances; ensuring economic development beyond mere growth, bringing about political maturity and socialisation processes - i.e. absorbing values, good work ethics, pluralism, patriotism, and so on (Ransom et al., 1993; Patel, 1993).

However, it should also be noted that universities can be troublesome institutions especially in transitional societies. They are often the ground for ideas that challenge established orthodoxy to emerge and grow. Professors as well as students engage in

political activism, presenting challenges to authorities, while they are widely accepted by the mass. There have been several incidents where such movements originating in higher education end up overthrowing governments (Altbach, 1992). On the contrary, governments want to have more control over universities as the later become more and more expensive and the former still shoulder the major responsibility of financing. Hence, universities and governments, especially in developing countries, are frequently at odds.

Concluding remarks

The experience of those countries commonly claimed to be the most successful developmental states shows that their higher education systems demonstrated certain common trends. The major characteristics of higher education in these countries are explained in relation to the high priority for rapid economic growth against the backdrop of low overall development. In other words, there appears to be a lot the present-day developing countries could learn from this experience in their pursuit to catch up with the rest of the world. However, it should be noted that detailed research is necessary to determine the practicalities in different developmental contexts on a case-by-case basis.

References

Abe, M. (2006).The developmental state and educational advance in East Asia. *Educate*, *6* (1), 6–12.

Altbach, P. G. (1992). Higher education, democracy, and development: implications for newly industrialized countries. *Interchange*, *23*(1 and 2), 143-63.

Altbach, P. G., Davis, H. C. and Eisemon, O. T. (Eds.) (1989). *Scientific development and higher education: The case of newly industrializing nations*. New York: Praeger.

Amsden, A. H. (1989). *Asia's next giant: South Korea and late industrialization*. New York: Oxford University Press.

Ashton, D., Green, F., James, D. and Sung, J. (1999). *Education and training for development in East Asia: The political economy of skill formation in East Asian newly industrialized economies.* New York & London: Routledge.

Castells, M. (1993). The university system engine of development in the new world economy. In Ransom, A., Khoo, S. and Selvaratnam, V. (Eds.), *Improving higher education in developing countries* (pp. 65-90). Washington: World Bank.

Hayashi, S. (2010). The developmental state in the era of globalization: beyond the Northeast Asian model of political economy. *The Pacific Review*, *23*(1), 45–69.

Hsieh, S. H. (1989). University education and research in Taiwan. In Altbach, P.G., Davis, H. C. and Eisemon, O. T (Eds.), S*cientific development and higher education: the case of newly industrializing nations* (pp. 177-214). New York: Praeger.

Marginson, S. (2011). Higher education in East Asia and Singapore: rise of the confucian model. *Higher Education, 61*, 587–611.

Morris, P. (1996). Asia's Four Little Tigers: A comparison of the role of education in their development. *Comparative Education, 32(*1), 95-110.

Pang, E. F. and Gopinathan, S. (1989). Public policy, research environment and higher education in Singapore. In Altbach, P. G., Davis, H. C. and Eisemon, O. T. (Eds.), S*cientific development and higher education: the case of newly industrializing nations* (pp. 137 -176). New York: Praeger.

Patel, I. G. (1993).Higher education and economic development. In Ransom, A., Khoo, S. and Selvaratnam, V. (Eds.), *Improving higher education in developing countries* (pp. 45-56). Washington: World Bank.

Patel, S. J. (1985). Educational 'Miracle' in Third World, 1950 to 1981. *Economic and Political Weekly, 20*(31), 1312-1317.

Peper, S. (1984).*China's universities: post-Mao enrollment policies and their impact on the structure of secondary education*. Ann Arbor: University of Michigan, Center for Chinese Studies.

Ransom, A., Khoo, S. and Selvaratnam, V. (Eds) (1993). *Improving higher education in developing countries*. Washington: World Bank.

Singh, J. S. (1989). Scientific personnel, research environment and higher education in Malaysia. In Altbach, P. G., Davis, H. C. and Eisemon, O. T. (Eds.), *Scientific development and higher education: the case of newly industrializing nations* (pp. 83-136). New York: Praeger.

Singh, J. S. (1991). Higher education and development: the experience of four newly industrializing countries in Asia. *Prospects*, *21*(3), 386–400.

Sungho, L. (1989). Higher education and research environment in Korea. In Altbach, P. G., Davis, H. C. and Eisemon, O. T. (Eds), *Scientific development and higher education: the case of newly industrializing nations* (pp. 31-82). New York: Praeger.

UNECA. (2011). *Economic report on Africa 2011: governing development in Africa – the role of the state in economic transformation*.

Van Vught, F. A. (1995). *Autonomy and accountability in government - university relationships*. Twente: Center for Higher Education Policy Studies (CHEPS).