The impact of tertiary education on growth and development

Moses Oketch, Tristan McCowan and Rebecca Schendel*

After a long period in which the international development community has placed emphasis on primary education, there is now renewed interest in tertiary education (TE). However, the extent and nature of the impact of TE on growth and development remains unclear. This rigorous review seeks to address this question in the context of low- and lower-middle-income countries (LLMICS).

In the immediate post-independence period, tertiary education in LLMICS received a substantial amount of domestic and external investment. However, interest in TE waned significantly in the 1980s and 1990s, causing a ‘crisis of quality’ in many systems.

About the Rigorous Literature Review

A conceptual framework was developed in order to structure the review of literature. Drawing on theories relating tertiary education to human capital development, endogenous development, capabilities and institutional growth, multiple potential pathways to impact were identified. These pathways lead to improvements in five forms of outcome: earnings, productivity, technological transfer, capabilities and institutional strengthening.

A rigorous review of relevant literature was undertaken, drawing on the principles of framework synthesis. After a search of bibliographic databases, institutional websites and existing literature reviews, the 6,677 studies identified were screened on title and abstract, and, subsequently, a reduced number (668) screened on full text. Included studies had to meet the criteria of providing empirical evidence of the impact of TE relating to LLMICS; be in English; and have been published since 1990. Following this stage, 147 studies were identified as being relevant to the main research question. All studies were then appraised for quality (data source, sampling, rigour of analysis, soundness of conclusion, etc). A further 48 studies were consequently excluded on the basis of lack of methodological rigour.

In terms of regional spread, the majority of studies focused on Sub-Saharan Africa and South and South-East Asia – in particular on India, Pakistan, Nigeria, Kenya and Tanzania; there were a very small number of studies on LLMICs in Latin America, North Africa, the Middle East and the Pacific Islands.

There is a large body of literature on TE in LLMICs; the majority of studies focus on the characteristics of TE systems and institutions, or on the short-term effects of interventions (for example, on policy and funding arrangements).

However, we found relatively few studies that sought evidence of the broader impact of TE on development in LLMICs. So while there is substantial debate and research about contemporary changes in TE systems – that is, the expansion of the private sector, including for-profit institutions; the commercialisation of public institutions; the establishment of branch campuses; and the development of distance-education models, including massive open online courses (MOOCs) – very few studies show how these changes have impacted on development at the societal, rather than institutional, level.

There are also few studies that consider the relative benefits of academic or vocational provision, or of home provision versus sending students to study overseas. We had similar difficulty in identifying studies showing the differential impact of externally funded interventions on development. In summary, educators’ and other development actors’ understanding about types of TE provision that bring the greatest impact (pedagogy and curriculum structure, for example) is ongoing and represents an important research agenda.

Conceptual framework

Much of the literature on TE relies on evidence from high- and upper-middle-income countries, whose experiences differ from LLMICs. A conceptual framework was therefore adopted, not as a definitive statement, but as a useful ‘working hypothesis’ that could be used to guide the identification and analysis of the available literature (Oliver et al., 2012: p. 73).

The framework outlines three major pathways through which TE impacts on development: through teaching; through research and innovation; and through service. These three pathways relate to the three central functions or ‘pillars’ of the university: teaching, research and ‘service’ – the last of these referring to the direct engagement of institutions with the local community and broader society, involving knowledge sharing, exchange and dissemination, and service provision such as shared use of facilities (Knight, 2004).

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* With Mukdarut Bangpan, Mayumi Terano, Alison Marston and Shenila Rawal
Cyber Academy, Zambia a registered College under the Ministry of Education, Science, Vocational Training and Early Education through TEVETA, was incorporated in July 2000 as an IT Institute which has now grown to collaborate with the British Computer Society (BCS), Association of Business Executives (ABE), International Computer Driving Licence (ICDL) and the University of Greenwich, UK among others.

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- BCS IMIS (Institute for the Management of Information Systems) Levels 4 and 5

**Association of Business Executives**
- Business Management Levels 4 and 5
- Human Resource Management Levels 4 and 5
- Marketing Management Levels 4 and 5

**Awards**
- Receiver of the European Award for Best Practices 2014, Brussels, Belgium
- Receiver of the International Quality Crown Award in the Gold Category of the Business Initiative Directions, a promoter of Total Quality Management 100 (TQM 100) and ISO 9000 2013, London UK.
Within these major pathways, a number of individual pathways for change were articulated. For instance, within the pathway through teaching, there are five discrete sub-pathways: one through increased earnings of graduates; one through increased productivity; one through technological transfer; one through increased ‘capabilities’ of graduates; and one through improved institutions. We suggest, therefore, that the development impact of TE outcomes is best examined through the contributions of TE to a wide range of interrelated development goals.

The formation of human capital through TE – and the externalities that arise through such formation – lead to endogenous growth and development, offsetting diminishing returns to physical capital and leading to sustained per capita growth. In some contexts, the contribution of tertiary education institutions (TEIs) to research and innovation may contribute to this cycle. At the same time, TE is assumed to contribute to wider non-economic development outcomes through the production of graduates with increased capabilities and through improvements in public and private institutions. The process is also assumed to benefit from an iterative feedback loop, as the combined effect of these impacts raises the productivity of a population and the capacity of institutions, setting the stage for further growth and development.

It is important to acknowledge that there are a number of fundamental assumptions underlying this theory of change. As we have noted, many of these assumptions are unlikely to hold in the context of this review. We elected to highlight them from the outset of the review process, so that we could explicitly examine how the available evidence engages with these potential barriers to impact. Although similarities in the history and circumstances of TE systems across the developing world have allowed us to draw general conclusions about the ability of TE to impact on development in such contexts, it is clear that the particular pathways – and barriers – to impact differ between individual national contexts.

First, the framework assumes sufficient access to and quality of primary and secondary education. Growth equations estimated for East Asian countries indicate that high levels of primary and secondary enrolment were necessary in order for increased enrolment in TE to impact on growth (McMahon, 1998). In contrast, substantial early investment in TE in the Indian context did not result in sustained economic growth per capita, because of the lack of comparable expansion in basic education, particularly in rural areas.

Some of the pathways to impact also assume relatively high TE enrolment rates. Theorists have argued that there is a critical threshold that must be reached before TE can have a substantial impact on macro-level outcomes.

The model also assumes equality of access to TE but clearly there is extensive literature identifying substantial inequalities of access in LLMICs due to factors including race/ethnicity and affordability.

Further, the pathways to impact all assume that TE is of sufficient quality and subject breadth. In reality, reductions in external aid to TE (inspired by the rate-of-return analyses of the 1980s) combined with the effects of structural-adjustment policies on public spending resulted in a drastic lack of funding for TE in lower-income contexts throughout the 1990s. As a result, TEIs were unable to pay adequate wages or hire a sufficient number of staff to cope with rising student enrolment. Many of the most qualified faculty members emigrated to universities in Europe and North America during this period (Ajayi et al., 1996; Herrera, 2006; Schwartzman, 2008).

As a result of this ‘brain drain’, many institutions have retained very few sufficiently qualified academic staff. Infrastructure has also deteriorated, leaving many institutions with limited capacity to conduct or access research. The negative impact of these circumstances on academic quality has been further compounded by inefficient and, in some instances, corrupt governance within TEIs. With regard to migration of graduates, an important assumption is that graduates will apply their skills to local industries and institutions, rather than emigrate. A supportive ‘enabling environment’ for TE (Palmer et al., 2007) is one in which graduates can capitalise on their education, where TE does interact with local industry.

TE quality also relates to academic freedom. TE cannot function as a public space for critique, for example, without the freedom to express contradictory or unpopular ideas. There is substantial literature regarding the lack of academic freedom in many LLMICs (for example, Ajayi et al., 1996; Coleman, 1986; Mkandawire, 2005; Herrera, 2006).

Key findings

The studies included in this review suggest that TE does have an important impact on development in LLMICs. However, it appears that TE may have a stronger impact on some outcomes than others. Other areas have not yet been researched sufficiently to allow for any firm conclusions.

The simplest and most important finding of this study is the lack of research that assesses the impact of TE. Despite the large body of literature on this level of education in LLMICs, only a small number of studies identified (99 in total) actually provide robust empirical evidence of the ways in which TE affects society. The number of studies is insufficient to draw firm conclusions about all of the pathways. In particular, there is a severe lack of studies gauging the impact of research and service; those studies that were included were predominantly focusing on the teaching pillar. There is also a significant lack of evidence related to a number of important outcomes of TE, including productivity, technological transfer and institutional development.

In terms of consistency, most of the studies do show the positive impact of TE, but there is divergence as to the nature and extent of this impact. Furthermore, those studies showing limited impact, or absence of impact, do not necessarily imply that TE is not a worthwhile investment of resources; rather, the lack of impact may be attributable to certain limiting factors, such as poor-quality teaching, a lack of facilities for research, ineffective governance of TEIs and barriers within the enabling environment. Very few studies show a negative impact of TE, although a few have been identified (for example, see Urdal, 2006).

Figure 1 summarises the available evidence in relation to the outcomes of TE considered in this review.
Discussion

The key findings of the review can be summarised as follows:

1. The returns to TE have largely been underestimated.
2. In addition to having a strong impact on the earnings of graduates, there is some evidence to suggest that TE has a positive impact on productivity in the workplace.
3. There is also evidence that TE has a stronger impact on macro-level economic growth than was previously assumed. The impact of TE on income equality is more difficult to isolate and appears to vary significantly depending on context.
4. Although there is very little evidence that TE contributes to development in LLMICs through research and innovation, the proportion of workers with higher education within a given context appears to increase the likelihood of technological uptake and adaptation. There is also limited evidence that research outputs may impact development at local level by increasing the productivity and efficiency of SMEs.
5. TE appears to have a strong positive impact on graduates' capabilities, including health, nutrition, political participation and women's empowerment, although the effect of TE is not always sufficient to overcome entrenched barriers in society.
6. TE also appears to have a positive impact on the strengthening of both formal institutions and social norms, in areas such as governance, public services and the environment.
7. Evidence of impact at micro level is more robust than at macro level, given the lack of available macro-level data, methodological inconsistencies between studies and the likely barriers to impact in many LLMICs.

When taken as a whole, the body of evidence analysed in this review suggests that TE plays an important role in both economic and non-economic development in lower-income contexts. For years, much of the international literature on TE in lower-income contexts emphasised the private benefits to individuals. However, recent studies have indicated that investment in TE also yields significant social returns, both in terms of economic growth and in terms of non-economic benefits.

The included studies show a consistent positive impact of TE on societal institutions and on a range of capabilities that have public, as well as private, benefits. There is also evidence that TE has a positive impact on the natural environment. Although a small body of evidence, the consistency of evidence linking TE to non-economic benefits is particularly important in light of recent policies in many LLMIC contexts, which have moved TEIs towards an increasingly narrow focus on employment and earnings.

The impact of TE in terms of poverty reduction was harder to analyse, given the severe lack of evidence on this topic. To a large extent, access is still restricted to those of a high socio-economic status, and the prior education and economic advantage of parents determine the educational progression and life chances for their children. Although access policies have come into effect in many LLMICs, we could identify few studies that investigated how such policies have impacted inequalities within society. We also found very few studies that consider the relationship between TE provision and absolute poverty levels in LLMICs. We did, however, identify a few studies that indirectly examined TE's impact on poverty reduction through the formation of pro-poor professionals (for example, Oman et al., 2009) and through direct service to local communities (for example, Collins, 2012).

The findings do not suggest that the conventional theory of change (the conceptual framework discussed above) is inapplicable to lower-income contexts, as we found no consistent evidence indicating that any of the pathways to impact do not function. The review has, however, exposed some areas of inconsistency in the literature, as well as a significant lack of evidence around certain pathways.

It is important to recognise that some of the outcomes can, in fact, also be seen as ends in themselves. For example, democratic institutions and an active and participatory citizenry can be seen as constitutive of development, as well as being conducive to improvements in social welfare. There is a clear need for additional research considering non-market benefits of TE such as these, and a clear interest among local research teams – despite the methodological and resource challenges. Southern perspectives on TE are, therefore, important in acknowledging the diverse forms of impact and in illuminating the complexity of context-specific barriers and facilitators to impact. Support for southern researchers would seem to be an important area of investment in this domain.

Conclusion

There continues to be significant interest in the long-standing debate around the relative importance of investment in different levels of education. As discussed throughout this report, there is significant disagreement around the relative return on investment in primary, secondary and higher education. This review cannot provide a definitive answer to this question. It does, however, highlight the danger of investing in one or two levels of education at the expense of the others. It seems clear that the reduction in
funding of TE systems in recent decades has had a negative effect on the quality and, therefore, impact of TE in many LLMICs.

Although the findings of this review suggest that investment in TE is likely to have a positive impact on a wide range of development outcomes, investment in TE at the expense of other levels of education is unlikely to yield positive results. Keller has asserted that ‘education stages affect one another – mainly, lower stages benefit higher – e.g. primary enrolment rates and expenditures per pupil therein highly significantly increase secondary enrolment rates, which in turn and with expenditures thereon raise college enrolment rates’ (p. 29). We agree with this analysis and emphasise that investment in the full continuum of education appears to be necessary for development. Although analysis of evidence from individual upper-middle-income countries is beyond the scope of this review, the theoretical literature suggests that many upper-middle-income countries have benefited from investment in the full range of educational provision.

Endnote
1 We use the term ‘tertiary education’ to refer to formal educational institutions that ‘build on secondary education’ (UNESCO, 2011). This category of institution includes universities, medical and business schools, polytechnics and technical colleges, teacher-training colleges and two-year further education institutions. Formal post-secondary technical and vocational training, leading to either a diploma or a degree, was also included in the scope of the research.

References


DR MOSES OKETCH is a reader in educational planning and international development at the Institute of Education, University of London. He obtained his master’s in science and then PhD in economics of education at the University of Illinois at Urbana-Champaign (USA). His research interests include economics of education, education policy analysis, impact evaluation, and issues in education and international development. He has supervised more than 45 master’s dissertations on various topics in education and international development.

DR TRISTAN MCCOWAN is senior lecturer in education and international development, also at the Institute of Education. His current work focuses mainly on higher education in the international context, addressing issues of access, curriculum, internationalisation and alternative models of the university. Research interests also include citizenship education, human rights and participatory approaches. He works largely in Latin America – particularly Brazil – but also elsewhere in the world, including Sub-Saharan Africa.

DR REBECCA SCHENDEL is a lecturer in education and international development at the Institute of Education. Her research focuses on higher education in low-income contexts, particularly Sub-Saharan Africa. Schendel is particularly interested in the academic quality of African universities and the impact of universities on human development in the region. She has more than ten years of professional experience working with universities in Africa, Europe and the USA.
Impact of tertiary education in Kenya and Rwanda

The following two case studies provide an illustration of how pathways – and barriers – operate differently in particular contexts. We elected to consider two countries from the same geographic region, which have had different historical trajectories and different experiences with tertiary education (TE). We first consider the case of Kenya, a country with a long history of TE, before turning to the case of Rwanda, a country that has recently redeveloped its TE system.

The case of Kenya

Sessional Paper No. 10 of 1965 (GoK, 1965) set the pace for development at the time of Kenya’s independence. It gave TE the key role of developing the necessary personnel for civil service. For more than two decades following independence, there was a cautious expansion of TE. This expansion was driven by civil-service labour needs, rather than any idea that TE graduates might spur economic transformation. University admission was tied to the available bed spaces at the university residential halls (Oketch, 2003). The University of Nairobi remained the dominant institution between 1970 (when it became a fully fledged university) and 1984 (when Moi University was established). A year later, in 1985, Kenyatta College, which had been a constituent college of the University of Nairobi, became an independent fully-fledged university.

During this period (1970–90), per-pupil expenditure on TE was high. The elite model of university dominated, with the government paying expensive room and board costs for accepted students and with most graduates preferring to look for employment in the civil service and government parastatals.

Private-sector employment was minimal, so it can be argued that TE primarily served the human-capital needs of government, government parastatals and a few international corporations (such as Unilever and Barclays Bank). This restricted, subsidised TE system stood in sharp contrast to high levels of illiteracy and low primary-education enrolment rates, and amounted to a situation in which the poor subsidised the education of the better off (as the majority of Kenyans from low-income backgrounds had an extremely limited chance of accessing TE). This elite model of university produced an extremely high personal rate of return (ROR) for the graduates with limited externalities normally associated with expanded access to TE.

Since the 1990s the TE sub-sector has changed dramatically, largely due to the rapid rise of private universities and fee-paying units within public universities, popularly known as ‘parallel programmes’ (Oketch, 2009). This has led to a more demand-driven TE sub-sector, linked to the needs of the labour market, in contrast with the former supply-driven model.

There has also been a shift in the emphasis on the role of university graduates in Kenya’s development, due to a lack of employment opportunities within the government. This has resulted in an expansion of enrolment in demand-led higher education and accelerated the emergence of private providers. However, there has been little evidence of growth in the areas of technology and science. Social science has dominated the growth and expansion so far, with commerce-related disciplines, such as bachelor of commerce degrees, actuarial science, IT and business, becoming very popular degree options.

Vision 2030 (GoK, 2003), being different from Sessional Paper No 10 of 1965 (which focuses on civil-service employment), clearly advocates for the role of TE in making Kenya a middle-income country by 2030. It emphasises the role of private-sector development and recognises the importance of both physical capital and human capital in Kenya’s transformation.

As a result of the new focus on TE, the sub-sector has expanded rapidly in the last few years. There are currently 24 public universities, 14 of which were awarded the status of university in 2013. The older and more established universities are Nairobi (1970), Moi (1984), Kenyatta (1985), Egerton (1988), Maseno (1991), and Jomo Kenyatta University of Agriculture and Technology (1994). There are a further 23 private universities, with United States International University being the oldest (established in 1970). The majority of the other private universities, like most of the newer public universities, were established recently. There are 44 vocational/technical colleges established by the government and numerous private commercial colleges, particularly in the major centres of Nairobi, Mombasa, Kisumu and Eldoret, which specialise in basic computing skills, banking and marketing. Within the East African region, Kenya has had a liberal approach towards the expansion of TE, which has bolstered its human-capital capacity. However, like several other countries in Africa, there have been distortions in the way education has been utilised that have, in turn, impacted the potential for TE to influence development in the country.

In the TE hierarchy in Kenya, national polytechnics are considered to be one level below universities. These technical institutions are generally populated by those who do not meet the entry cut-off marks for university enrolment. They are also prestigious and, like universities, have historically been fully subsidised. Throughout much of their history, they also mainly produced technicians for the civil service. In the early years of independence, the main polytechnics were Kenyatta Polytechnic in Nairobi and Mombasa Polytechnic. Eldoret and Kisumu Polytechnics were later established. The former two were upgraded to full university status in 2013, reflecting the general trend in Kenya of conversion of
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- Criminology
- Sociology
- Mass Communication
middle-level colleges into universities. Below the polytechnics are the teacher-training colleges, which provide diplomas and certificates, and vocational and technical colleges, populated by those who do not merit entry into the national polytechnics or the universities. Private commercial colleges, focusing primarily on commerce and technology, tend to be accessible only to youth from families that are economically better off.

**Tertiary education in the Kenyan context**

Manda et al. (2002) is one of the few empirical studies on the return to TE education in Kenya. In their analysis, they concluded that ‘the private returns to education generally increase with the level of education’ (p. 11). University education is reported to have the highest ROR, at slightly more than 25 per cent, compared to 7.7 per cent for primary and 23.4 per cent for secondary education. These rates show the distortions in the labour market and the heavy subsidisation of university education in Kenya. As expected, returns in the urban areas were reported to be higher than those in rural areas, clearly indicating that it is beneficial for those with university education to work in urban areas. Indeed, in rural areas, which are mainly agricultural, the secondary level appears to have greater returns than the tertiary level, which is an indication of the limited employment opportunities requiring TE in rural areas. The findings by Manda et al. (ibid.) are similar to those in earlier studies (for example, Appleton, 1999; Manda, 1997). In general, however, there is a dearth of data related to the return to TE in Kenya. There has also not been a recent update that covers the entire labour structure. Labour-force surveys are not regular or consistent, which makes it difficult to update datasets related to interactions between the labour market and TE.

There is also a general sense that TE has provided the necessary human capital for an emerging private sector. The lack of employment opportunities in the civil service has motivated graduates to seek employment in private industries, and home-grown conglomerates, such as Safaricom, Equity Bank and others, are examples of Kenya’s economic progress that can clearly be associated with a high stock of TE-educated members of the workforce. To take a few industry examples, Kenya is known for pioneering and leading the mobile-banking industry and for making significant contributions to technological innovation at regional level. The financial sector has also grown in recent years, due to the large pool of graduates in business-related fields.

Mid-level training in vocational and technical colleges does not seem to have had such a transformative role. Statistics are not readily available, but it appears that many of those trained in public vocational and technical colleges find it difficult to obtain employment after graduation. Recent growth in the real-estate sector in major towns has seen the contribution of many of these graduates, particularly in construction skills such as plumbing and electrical work. However, this is still a small sector within the Kenyan economy.

In terms of other outcomes, aside from increased earnings, it can be argued that early graduates of Kenyan TE were instrumental in establishing government institutions. More recently, however, the civil service has been associated with high levels of corruption and inefficiency. In this regard, it must be acknowledged that graduates of TE do not always have a positive impact on institutions in the Kenyan context. That being said, there has also been greater political openness in recent years, a trend that is likely to be associated with higher education externalities, similar to trends identified by Keller (2006). The Kenyan media, for example, is now much more active and independent of government interference than it has been in the past. Growth in civil society and increased participation in governance debates have occurred alongside TE expansion in the country. Multi-party elections have become more established since 2002, although it cannot be said that corruption has disappeared from Kenyan politics. The post-election violence of 2007–08 reflected the challenges faced by a country that has not managed to establish many basic structures for transparent governance, leadership and the rule of law.

**Challenges**

The present focus is on a liberalised, demand-driven TE sub-sector in Kenya. Entrepreneurship is still limited, although there has been significant growth in the IT and business sectors. However, TEIs have not yet found a way to foster innovation skills, either through teaching or research. Very few patents emerge from Kenya, and very few graduates seem to have the skills needed for agricultural innovation, technology or manufacturing. Research into how TE interacts with the labour market has also been very limited. The lack of systematic data collection has inhibited proper analysis of the inter-linkages between TE and development in the Kenyan context.

Access to TE also remains a challenge in Kenya, as less than five per cent of the age cohort is currently enrolled in TE. This means that less than ten per cent of the overall population has had tertiary education. Like many other countries in the region, Kenya has a very young population and youth unemployment is a major issue. The government has attempted to address it by establishing a youth fund, but this has not been satisfactorily operationalised due to the inefficiencies and negative attitudes within the civil service, such as corruption and tribalism.

Despite these barriers, Kenya can be described as being at a crossroads in terms of its TE sub-sector. Government policy towards TE will, therefore, be crucial in order to ensure that TE plays a transformative role in Kenya’s development. Expansion has been rapid, but there is still limited capacity to meet the demand for higher education and labour-market bottlenecks remain a challenge for university graduates. Kenya adopted a new constitution in August 2010, which aimed to deliver a new Kenya, devoid of the situation that led to the 2007–08 post-election violence. The new constitution created a devolved system, meaning that Kenya now has 47 elected governors mandated with developing their regions. How this devolution is harnessed to promote and utilise TE will be an important area of study.

Regional growth will require both monetary and human capital, and hubs of growth are expected to emerge. If this happens, it will open a new front in Kenya’s development trajectory. TE has a crucial role to play, but only if the sub-sector continues to move away from an exclusive focus on training for the civil service and towards an emphasis on innovation and links with the private sector.
The University of Nigeria was established as a land-grant university on the eve of Nigeria’s independence in October 1960, making it Nigeria’s first indigenous and autonomous university. Its mandate, as prescribed by its founder and Nigeria’s first President, Rt. Hon. Dr Nnamdi Azikiwe, was to provide the manpower needed to build the newly independent black nation.

Benefitting from the mentorship and technical assistance of Michigan State University, USA, and the University of Exeter, UK, the University of Nigeria built a reputation for excellence – and breakthroughs soon followed. Remarkable among these were the production of a cholera vaccine in 1970 and the successful conduct of an open-heart surgery – one of the first in Africa – by staff at the University’s College of Medicine.

At the helm of affairs of this University is its 14th Vice-Chancellor, Professor Benjamin Chukwuma Ozumba. An astute administrator, Prof Ozumba has an enviable record of accomplishment of achievements within the academic and administrative circles of his career as a Professor of Obstetrics and Gynaecology as well as Dean of the Faculty of Medicine and former Provost of the University’s College of Medicine. Within weeks of taking the office of Vice-Chancellor, he restored peace and tranquility within the campuses as well as improved relationships among the students. This move has led to the seamless appointment of Heads of Department and Units as well as conducting successful elections of Deans into the various faculties of the University.

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The case of Rwanda

Despite Rwanda’s close geographical proximity to Kenya, there are dramatic differences between the TE systems of the two East African countries. In general, the dissimilarities between the systems are attributable to Rwanda’s recent violent history. Along with an unimaginable loss of human life, the war and genocide of 1994 devastated the country’s infrastructure, including its institutions of higher learning. Although tragic in every sense, the genocide has played a crucial role in the history of TE in Rwanda for two primary reasons.

Firstly, the complete destruction of the sub-sector has allowed for the establishment of an entirely new system of public TE in Rwanda (Mazimhaka and Daniel, 2003). Most public universities in the region continue to struggle to overcome the legacy of decades of neglect. In contrast, the public TE system in Rwanda is relatively unburdened by historical challenges. Secondly, the particular nature of the relationship between the Rwandan government and the international community has allowed for the prioritisation of support for the TE sub-sector, even in the face of competing donor pressures. For the past 20 years the international focus on universal primary education has prevented many African governments from providing substantial funding to their TEIs, as international donors have demanded that the majority of education funding be dedicated to the primary sub-sector. Rwanda has generally been able to resist this pressure, likely due to feelings of guilt within the international community for the lack of international interference during the events of 1994 (Hayman, 2009). This dynamic has allowed the Rwandan government to maintain an unusually high level of financial support for its TEIs (Hayman, 2007).

In the years directly following the genocide, Rwanda justified its expenditure on TE in terms of the need to replace highly skilled human capital lost during the conflict (Mazimpaka et al., 2000). In recent years the rhetoric has shifted to arguments in favour of the importance of TE in the context of the knowledge economy. As a small, land-locked country, Rwanda has very few natural resources. The government has therefore elected to model its national development strategy on the trajectory of the East Asian ‘tigers’, particularly Singapore, which relied on the education of an expanding workforce to facilitate economic growth and self-reliance (Murenzi and Hughes, 2006). TE is, therefore, seen to play a prominent role in the realisation of Rwanda’s development vision.

As a result of the government’s financial and rhetorical support for TE, Rwanda’s TE sub-sector has grown exponentially in recent years. The public TE sub-sector currently comprises seven universities, and ten training colleges and polytechnics (Sindayigaya, 2010). There has also been a rapid expansion of private TE, with private institutions accounting for roughly half of the country’s higher-education enrolment (MINEDUC, 2012). In 2011 there were 73,674 students enrolled in TEIs in Rwanda. Although this is still only 4.8 per cent of the eligible population (WB, 2011), student enrolments have risen by between 15 per cent and 25 per cent a year since 1995 (MINEDUC, 2012). In addition to expanding the number of TEIs, the Rwandan government has attempted to improve access to TE by providing bursaries to students that perform particularly well in the national examination at the end of secondary school (WB, 2009).

Investment in tertiary education in the Rwandan context

In many ways, it is too early to determine the developmental impact of the government’s investment in TE, as much of the expansion of the TE sub-sector has occurred in recent years. Only one study in this review investigated any macro-level impact of TE in the Rwandan context (Lassibille and Tan, 2005). The analysis from this study indicates that the private ROR is much higher than the social ROR on investment in TE in Rwanda. However, the Lassibille and Tan study relies on data from 1999–2001. It seems likely that more recent data would reflect different trends, particularly given the importance of incorporating a time lag into any analysis of the impact of TE on economic growth (McMahon, 1999).

There is, however, some evidence of micro-level impact within the Rwandan context. In his investigation of a USAID-funded agricultural-research partnership based at the National University of Rwanda, Collins (2012) found that the initiative had increased the productivity and earnings of local coffee farmers. Although ultimately excluded from the review due to the non-transparency of its research methodology, another study identifies a number of products developed at the Kigali Institute of Science and Technology (KIST), such as low-cost hand- and foot-powered water pumps, which are used to improve health and sanitation in rural areas (Butare, 2004).

Challenges

The situation of the TE sub-sector in Rwanda differs from the situation in many other low-income contexts. The explicit focus on TE as a national development priority has allowed for the rapid expansion of the sub-sector, resulting in a higher proportion of TE graduates in the workforce. National policies and the solicitation of targeted donor investment have attempted to diversify access to TE and increase the amount and quality of research generated within TEIs. Many of the national public institutions are also in the process of developing postgraduate programmes in an attempt to build the capacity of future academics and limit the ‘brain drain’ of graduates leaving the country in search of postgraduate qualifications. In addition to supporting the TE sub-sector, the government has focused on improving the ‘enabling environment’ for TE (Palmer et al., 2007) by improving public health, ensuring high levels of public security and establishing supportive structures for the establishment of small businesses.

The 2006 decision to abolish school fees for lower-secondary education has also substantially increased the national primary-school enrolment rate. In 2011, 94.3 per cent of boys and 97.5 per cent of girls were enrolled in primary school in Rwanda (MINEDUC, 2011), which is one of the highest primary-school enrolment rates in the region. The combined effect of these initiatives is likely to increase the likelihood that Rwandan TE can have a positive impact on development outcomes in the future.

There are, however, barriers to impact, which are likely to operate in the Rwandan context. There is some evidence that academic quality may be a significant issue within Rwanda’s TEIs. Schendel (2013), for instance, has found that students at Rwanda’s public universities do not demonstrate significant improvement in critical
thinking ability during their time at university. There has been little investigation of research activities within Rwanda institutions. However, there is a high likelihood that academic freedom may be limited, particularly within the public universities.

Despite these areas of potential concern, the Rwandan situation is certainly a promising one, particularly if the government is able to sustain its financial support for the TE sub-sector. It will, therefore, be an interesting case study to follow in the years to come.

Endnotes

1 In 2013 the Rwandan government combined the public universities into one University of Rwanda with constituent colleges, so there is, technically, now only one public university in the country

References


