

# Education Bank Loan as a Channel for Financing Higher Education in Rwanda

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**Abstract:** Applying a documentary approach, this study sought to find out a sustainable higher education financing mechanism for Rwanda based on human capital theory, which postulates a positive relationship between the levels of education, the main way of acquiring human capital, and labour productivity. That means higher levels of education, *ceteris paribus*, contribute more to economic growth than lower levels of schooling, hence contradicting previous studies on low-income economies that placed heavy emphasis on investing in primary education, partly due to the primary sector orientation of these economies and high rates of returns associated with the primary schooling. The study established that Rwanda is committed to invest in higher levels of education. However, despite this interest to invest in higher levels of education, findings revealed that for Rwanda the government budget allocated to that sub-section is still a major constraint. This study recommends creation of an education bank loan.

**Key words:** Financing, Investment, Human capital, Education Bank, Rwanda

## 1. Introduction

Education is a vital mean of acquiring human capital. It provides people with a better understanding of the environment, including the production process. Understandably, different levels of education equip people with different skills, ranging from literacy and numeracy associated with the primary level of education, to the deep research emerging from innovation and adoption of technology associated with higher levels of education (Marginson, 2011). Concerning the contribution of education to economic growth, many studies, such as Gathak (1995), Gemmel (1996) and Papagegiou (2003) Psacharopoulos (1985, 1994), among others, have emphasized primary education as a necessary and adequate ingredient for economic growth and development in developing countries, especially those with low-income. This argument is based on the economic structure of these countries and the estimated high return rates on investment in primary education. With raw materials as their primary product, and a predominantly rural agricultural sector, low-income economies need the literacy and numeracy skills that are instilled at the primary school level. In these countries, the structural transformation towards modernization, increased

production and capitalist development is either absent, very primitive, or dualistic. The majority of the population lives in rural areas, with low levels of education Cypher and Dietz (1997). Based on the rate of the returns, Jamison and Lau, (1982); Lau, *et al.* (1991) and Psacharopoulos (1994), among others, argue that, universal primary education is one of the most important factors in economic development in low-income economies. Their studies find that the rates of returns on primary education are higher in poor countries, because wages earned by additional years of schooling exceed by far the initial cost of schooling.

However, in a global context, economic competitiveness hinges on advanced knowledge and technical innovation, rather than on the elementary working skills acquired through the primary level of schooling. The focus on universal primary education as a strategy to achieve economic growth and make a developing economy competitive in a modern environment, is inadequate in view of rapid technological development (Kumar, 2003). In this line, in its Vision 2020 and onward, Rwanda is committed to investing in higher levels of education to promote its economic growth (MINECOFIN, 2013).

Despite this interest to invest in higher levels of education, the level of enrolment in higher education in Rwanda is at lower levels in comparison to that of some other middle

income countries such as Mauritius and China that Rwanda would like to catch-up with. For example, between 2000, 2010 and 2013, the gross enrolment ratio in tertiary education has changed from 1.28 percent, 5.56 percent to 7.52 percent for Rwanda whereas it changed from 11.03 percent, 33.69 percent to 39.72 percent for Mauritius, and 7.72 percent, 23.94 percent to 30.16 percent for China (World Bank, 2016). In addition, in Rwanda the population attending tertiary education is at lower level of 3 percent in 2014 (NISR, 2016), and it is even below that of the whole Sub-Saharan Africa in 2007 which was at 4 percent (Marginson, 2011).

While the gross enrolment ratio in tertiary education for Rwanda grows at a lower rate compared to that of Mauritius and China, the expenditure share on tertiary education in Rwanda as a percentage of total government expenditure on education for the period spanning from 2000 to 2013 decreased from year to year. Taking into consideration 2000, 2010 and 2013, it decreased from 34.64 percent in 2000 to 22.74 percent in 2010, and to 14.02 percent in 2013 (World Bank, 2016). Similarly, external funding to education has gradually decreased (UNICEF, 2017). For example, the proportion of external support to the total budget of education has decreased from 6.7 percent in 2015/2016 to 2.5 percent in 2017/2018. Therefore, defining an education-financing strategy that promotes the country's human capital at higher levels, should, in the long-run, address this problem. This paper intends to propose a financing mechanism that can overcome the resource constraint on financing higher education in Rwanda.

The rest of the paper is organised as follows: section two reviews the literature and empirical evidence on how investment in higher levels of education had impacted positively economies of some selected countries, section three describes the investment in higher education in Rwanda along with its financial constraints while section four proposes a sustainable financing mechanism for higher level of education in Rwanda, and section five concludes the paper.

## **2. Review of Related Literature and Studies**

This section presents evidence on how higher levels of education impacts positively economic growth of countries that are recipient of investing in such levels of education. It also describes the overview of investment in tertiary education in Rwanda, and concludes by pointing out the problem of declining trend in public funding of tertiary education as the ratio of the public spending on this sub-sector in the total budget allocated to education sector is decreasing from year to year.

### **2.1 Evidence on How Investment in Higher Levels of Education Contributed to Economic Growth of Selected Countries**

This research draws on endogenous growth theory and empirical evidence that argues that higher levels of education are essential in order to develop human capital capable of driving economic growth. Endogenous growth models emphasize the importance of investment in human capital and the potential gains from the transfer of technology from countries with a more advanced research capacity to the low-income country (Perkins *et al.*, 2001). With regard to the situation in Rwanda, the current study argues that productivity should increase in accordance with the level of human capital. Primary schooling is inadequate for adopting the sophisticated technology that characterises a modern economy. Secondary and tertiary education are, therefore, of greater significance for technological innovation, absorption and diffusion (Engelbrecht, 2002). Secondary school graduates are qualified to cope with middle-level jobs, such as sales and services occupations, whereas graduates at tertiary level are equipped with technical knowledge, as well as the skills required to cope with logical and analytical reasoning tasks (Colclough, 1982).

Most low-income economies, however, are characterised by poverty, low state investment, limited numbers and quality of educational and legal institutions, inadequate financial resources and capital market imperfections. These factors combine to prevent adequate investment in human capital. Thus, the stock of skills and productive knowledge embodied in people remains low and consequently limits economic growth. However, evidence from some countries such as Mauritius, Taiwan and Singapore that moved from low-income economies to middle-income economies and to high income was due to investment in higher levels of education. Each economy grew at its own pace, depending on initial conditions and the type of public policy pursued. However, what accounts for the astonishing take-off in these economies in recent years seems to be high investment in advanced human capital.

Mauritius, without abundant natural resources, such as oil, diamonds, gold or sufficient land, etc., succeeded in transforming its economy from a low, agriculture-based economy to a middle-income economy. At present, Taiwan, which was a low-income country in the 1950s, finds itself among the Newly-Industrialized Countries (NICs). Singapore, which was a low-income economy in the 1950s; today strives to be classified as a high-income country.

Nath and Madhoo (2004), in analysing the share contribution of different inputs to real GDP per worker in Mauritius in the 1990s, found that at 0.38. The share of education was more important than the share of physical capital at 0.18.

Mauritius centred its strategy on attracting foreign investment and advancing the information technology sector. It accelerated its economic growth through the strategy of developing an export-oriented manufacturing sector after 1982, continuously modernising its sugar

industry and gradually diversifying into tourism and offshore services (Nath and Madhoo, 2004). New technology and managerial skills were part of the diversification process, and as a result, a take-off of the economy was observed. Further investment in human capital allowed the Mauritian population to absorb and develop effectively the technology which foreign firms had brought into the country in the first place. From an initial specialisation in simple assembly in the late 1970s, production processes became increasingly complex. Industrial development, therefore, became more and more human capital intensive, and the rising demand for skilled labour was matched by a corresponding expansion in schooling (Michaelowa and Ehlert, 2004).

By the early 1960s, Taiwan had already embarked on universal primary education. In 1968, a reform of Taiwan's compulsory education system extended the duration of constitutionally-guaranteed, tuition-free education from 6 to 9 years (Spohr, 2003). The institution of this universal primary education, reports McMahon (1998), has generated an excess demand for secondary and tertiary education. In 1979, the government introduced a science and technology program with the focus on high-level technologies (Lin, 2003).

Lin's findings (2004) indicate that one additional percent of higher education stock is estimated to increase real output by approximately 0.19 percent. The positive relationship between higher education graduates by disciplines and the economic growth of Taiwan during the period 1965 to 2000 indicates that graduates in disciplines such as engineering and sciences meet the needs of the economy.

By testing the causal relationship between human capital accumulation, exports and economic growth using data pertaining to Taiwan's real GDP, real exports, and higher education attainment over the period 1952-1995, Chu ang (2000) concluded that human capital accumulation fosters growth and stimulates exports. During the period 1952-1995, the average annual rate of real GDP in Taiwan rose as high as 8.18 percent. The distribution of workers with primary school, secondary school and higher education qualifications was 54.95 percent, 14.87 percent and 3.93 percent respectively in 1964. In 1993, the figures were 26.0 percent, 51.8 percent and 18.04 percent respectively (Chu ang, 2000). These results account partially for the transition of Taiwan from an agricultural economy to a newly-industrialized one since the 1950s. This lends credibility to the conclusion that higher levels of human capital trigger economic growth.

Singapore, which is currently classified as a high-income economy, in the 1950s was a small city-state, backward, agricultural sector (Peebles and Wilson 2002). However, its Gross National Product (GNP), which was \$1,330 in 1960, rose to \$ 42,212 in 2000. During the 1970s, manufactured exports were the engine of Singapore's growth, but by the 1980s they were joined by financial and business services, due to multinational predominance. The ratio of direct manufactured exports to GDP rose

from 9.4 percent in 1960-1966 to 66.5 percent in 1971-1979, before declining to 59.2 percent in the 1990s. The decrease was to the advantage of increases in services contribution to GDP.

As in Taiwan, universal primary education was instituted in Singapore in the 1960s and this generated an excess demand for secondary and tertiary education (Ray, 1998). Afterwards, the government invested heavily in creating high-level skills to drive the targeted upgrading of the industrial structure. The university system was expanded and directed towards the needs of the country's industrial policy (Lall, 2001). Its specialization changed from social studies to technology and science. For example, in 1996, 41 percent of its university graduates were from technical subject fields, such as natural science, mathematics, computing and engineering. The government oversaw the curriculum and quality, ensuring its relevance for the activities being promoted.

As regards the quality of education, measured by performance, using tests in mathematics and science, Singapore and other East Asian countries outperformed American Students (Stiglitz and Walsh, 2002). On the ranking scores for grade 8, in the Third International Mathematics and Science Study (TIMSS) assessment 1994-1995, Singapore scored highest in both mathematics and science, while South Korea was second in mathematics and fourth in science. Japan fared the best of the developed countries, coming third in both, Lall (2001).

In 1979, the government set up a Skills Development Fund (SDF), through which it collected a levy of 1 percent of the payroll from employers, to subsidise the training of low-paid workers. This was aimed at developing suitable human resources (Lall, 2001). The SDF levy is disbursed to firms that send their low-paid employees to attend approved training courses.

Though the forces underlying the success of the model economies discussed included heavy investment in education at higher levels, good policies that led to macro-economic stability, strong institutions that channelled financial resources to good use, besides establishing relative equality in income distribution (Stiglitz and Walsh, 2002). Political and social stability provided an environment conducive to investment.

In regard to financing sources, these countries used the public funds in the take off stage. For all primary education was compulsory and tuition-free. Public funding was done either through subsidies or loans. By subsidies model, students receive free or nearly free education which is given according to the academic merit.

## **2.2. Investment in Tertiary Education in Rwanda**

In Rwanda, education sector is coordinated by the Ministry of Education (MINEDUC). In carrying out this

coordination, there are government agencies in charge of some sub-sectors of education sector, that are the Rwanda Education Board (REB) which oversees pre-primary, primary and secondary school programmes, the Workforce Development Authority (WDA) that is responsible for Technical and Vocational Education (TVET) and the Higher Council for Education (HEC) (MINEDUC, 2017).

Regarding institutions of higher learning, the Law Governing Organisation and Functioning of Higher Education (27 of 2013) distinguishes three types in relation with the style of their management. These are: public institutions which are established by the law, government subsidised institutions that are established with the agreement of government and private partners and private institutions which are created by an individual or a private legal entity.

As by the year 2020, the Rwandan government plans to transform Rwanda from a low-income economy based on agriculture to a lower middle-income economy that will act as a communication hub and service-provider for the region (Tiklyet *al.*, 2003), education sector is playing a catalyst role. In this respect, the vision 2020 document seems justified in claiming that Rwanda must develop its service sector, such as its Information and Communication Technology (ICT). Therefore, there is an urgent need to put in place appropriate scientific and technological skills to exploit ICT capabilities that can facilitate a rapid change to a knowledge economy. This calls for adequate investment in human capital, especially in science and technology-based education and training at high levels of education.

The context of technological progress, coupled with Rwanda's ambitious program to become an ICT hub in the region calls for directing more students towards the fields of mathematics and natural sciences. This is because students who perform better in mathematics and sciences have more potential to become the future engineers and scientists who are needed in research and development. In other words, the concentration on mathematics and science corresponds to the theoretical emphasis on the importance of research and development activities as the source of growth (Fedderke, 2001; Hanushek and Kimko, 2000). The case of Singapore, discussed earlier, provides an example of how important it is to invest heavily in technical subjects. The impressive economic growth of Singapore can be attributed to this initial investment in technical skills.

On the path towards the achievement of the vision 2020, the government of Rwanda, through the Ministry of Education, sets medium-term objectives through different generation of Economic Development and Poverty Reduction Strategy (EDPRS). This provides a forward-looking plan with strategies, key activities and related indicators that have been costed on the basis of policy

goals identified in the Education Sector Policy. Plans for expanding the number of engineering and technical students at the tertiary level provide for attracting even the Multinational Companies (MNCs) with higher value-added and technology-based sectors are in place, as did Singapore. Even Mauritius has centred its strategy on attracting foreign investment, putting forward the information technology sector.

This strategy is supported by the findings of Lin (2004) which reveal that the Taiwanese government succeeded in transforming its agricultural economic structure into a high-technology and knowledge-intensive environment, since it supported a science and technology program in 1979. For the period under study (1965-2000), one percent of higher education stock is estimated to increase the real output by approximately 0.19 percent (Lin, 2004). Engineering/natural sciences majors played the most prominent role. One additional percent of graduates from business/social sciences, agricultural sciences, and engineering/natural sciences, is estimated to increase the real output by approximately 0.04, 0.07, and 0.09 percent respectively, (Lin, 2004).

While the vision 2020 is closer at its completion phase, the vision of education sector still lines up with goal four of Sustainable Development Goals (SDGs) that ensures inclusive and quality education that promotes learning opportunity for all. Especially through tertiary education, the sector is continually working to produce graduates who are well equipped with entrepreneurial oriented skills.

The big challenge however for Rwanda, remains the funding mechanisms that can be sustainable in the long-run. Said differently, despite this admirable strategy to plan a sustainable economy, able to compete in the current era of globalisation, the important question of how to finance the huge costs of an all-inclusive education remains cumbersome.

Given its small land size and marginal plots, high population density and growth, high transport costs, and the absence of important raw materials, coupled with difficulties associated with developing the industrial sector, it is evident that the country can no longer sustain itself on the strength of the agricultural sector. On the income and assets side, however, around 39.1 percent of the population lives under the poverty line (NISR, 2016). With regard to land as an asset, especially in the rural areas, 43 percent of the population has small land plots of less than 0.5 hectare. On average, the land size is 0.33 hectares (MINECOFIN, 2013). The productivity of these plots is very low. As a result, parents earn very little income from the sale of agricultural products, which makes them unable to finance education at the costly secondary and tertiary levels. The government itself, faced with competing financing priorities such as security, health and infrastructure, cannot fill the gap. One can argue that these costs, coupled with a high poverty rate among the population, partially explain the lower level of enrolment rates at secondary and tertiary levels of education in Rwanda.

Therefore, faced with the above constraints, the parents and the government need to devise strategies to achieve high enrolments at tertiary level. Finding affordable and sustainable sources of funding at both individual and Government level in Rwanda is imperative, as it was found that higher education in Rwanda yields high private returns (World Bank, 2004). That study by the World Bank (2004) estimated these returns at 46.9 percent. According to the same study, general secondary, secondary vocational and technical, and primary education levels yield respectively, 21.3 percent, 18.4 percent, and 13.2 percent. These findings differ from others, because most findings report the primary level as the one yielding high returns, as expressed by Psacharopoulos (1994), among others. Even so, these results confirm once again that private incentives for investing in high levels of education are strong in Rwanda.

New ways of financing must be found in defiance of the many constraints and priorities faced by the government. This financing will have to provide large amounts of funds, not only to finance a new strategy, oriented towards a higher education level, but also to ensure that those who are still excluded from education are brought on board.

One possible way is to afford credit to individuals who currently cannot afford the high cost of tertiary education. Due to their limited sources of income and low level of savings, the loan must be granted at affordable terms, conditions, and interest rates. An affordable education-financing policy must, therefore, be devised in section four. Such a policy should bear in mind that, under capital market imperfections, poor households are unable to obtain loans from the classic banking system, because they do not have collateral. Consequently, many children from poor families do not gain access to high levels of education.

### 3. Research Methodology

This study employed secondary data from previous research's findings. It is based on a diversity of sources of information, including books, theses, academic journals, institutions' report documents being in hard copy or electronic accessed. The study is based mainly on qualitative approach of investigation. The qualitative method has been chosen because it is best suited to meeting the demands which flow from the purpose of the study.

### 4. Results and Discussion

In order to provide more funds to augment the existing means of financing education, and make it accessible even to the poor, there is need for establishment of an Education Bank Loan. This bank is proposed due to the limitations from other sources of funding education presented in this section:

First, private model using human capital contracts cannot be applied in the Rwandan context because private investors still do not easily finance education, which is

very risky as borrowers do not have collateral. It would be difficult in case where the owner of the credit refuses to continue payments for whatever reasons. The lender can also have hard time locating the student borrower, since more educated individuals have high mobility (Palacios, 2004). The problem is aggravated by the "brain drain" phenomenon which developing countries have been experiencing for many decades. Many highly educated individuals leave their countries in search of better opportunities offered in developed countries. In such conditions, the lender would not get back the credit offered to such students.

Second, the subsidies model is also limited by its sustainability as the state has limited resources and has to perform other functions which compete with education.

The feasible way to ensure more funds to education financing in Rwanda is to replace the existing system of financing mechanism that moved from coordination of students' loans by SFAR to a department in the *Banque Rwandaise de Développement* (BRD) with the creation of the Education Bank Loan. This bank will contribute to achieving the goal of efficiency envisioned by the government of Rwanda when transferring the management of disbursement and recoveries of loans to students to BRD. In addition, the bank will be the best channel to the objective towards attaining long term financial self-sustainability that government aims to achieve in the horizon 2025. Indeed, the importance of this bank would be the following:

Firstly, in contrast to the existing management of loans granted by the Government through BRD, the bank can contract a long-term loan from the International Development Association (IDA), which offers loans to low-income countries at the lowest global interest rates. This could benefit more students than it is through the management of loans to students and their recoveries by BRD.

Secondly, functioning as a Bank, it will require the beneficiary of loans to pay with low interest rates that may be closed to the free risk financial assets' interest rate, thus generating resources that can be used to pay its personnel besides realising a surplus to allow the bank to grant more loans to more students.

Thirdly, a larger fraction of the funds previously set aside for higher education; will be directed to primary or secondary education. This draws a lesson from East Asia's extraordinary performance, where the allocation of public expenditure between basic and higher education was a major public policy (Cypher and Dietz, 1997).

Fourthly, this bank offers opportunity to employment creation in the country. This suggests that, it will contribute to resorb a fraction of unemployed people from the labour force, hence increasing number of workers contributing to the country's income.

Lastly, the bank, while representing an original approach proposed for Rwanda as one of home grown solutions, could meet the new approach of the World Bank's policy to find mechanisms that can sustain higher education by proposing charging student fees and by privatisation (Samoff and Carrol, 2003).

## 5. Conclusions and Recommendations

The study used documentary approach to gather data regarding the contribution of investment in higher levels of education to economic growth as well as the financing channels for selected countries from which Rwanda can draw lessons. One of the key findings of the study relates to the increasing importance of higher level of education to the economic growth. Empirical evidence from Mauritius, Taiwan and Singapore confirms this point of view. Using public funds, these countries invested heavily in higher levels of education, with an emphasis on the science and technology fields, which enabled them to make a transition to middle-income economies because higher levels of human capital allow for higher levels of technology use (Schultz, 1961; Bils and Klenow, 2000). However, factors such as macro-economic stability and economic policies, as well as adequate legal systems and institutions also play a role. The macro-economic policies and legal institutions provided great support for the successful economic growth. Their policy improvements included the institution of practices related to good governance, quality education that locked the workforce into a high level of productivity, and the creation of incentives to foreign investment.

This suggest that for Rwanda, there is a need for strong legal institutions that create a conducive environment and hold out hope of long-term rewards to highly-educated people. In brief, good governance, macro-economic policies, financial sector, and other factors constitute a good basis for the successful outcome of embarking on a promising economic growth and development path. A country that is able to maintain and improve its institutions and economic policies, which are conducive to a sound institutional environment, ensures the potential for a sustained growth.

However, regarding the financing mechanisms, a large proportion of resources for financing higher levels of education in low-income economies, such as in Rwanda, is still incumbent on the government, which often has other priorities that constrain its investment in education. A partial solution to this problem for Rwanda is to consider the creation of an Education Bank Loan whose advantages have been highlighted in section four. The bank will be like other home grown solutions in Rwanda that can allow many people to access to a sustainable funding mechanism. It may generate resources that can be used to pay its personnel, besides realizing some surplus that can permit the extension of loans to as many students as possible.

Future research should focus on the functioning of the suggested Education Bank Loan and recovery mechanisms.

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