
Shifting trends in higher education funding

PIERRE DE VILLIERS AND LIEZL NIEUWOUDT

Stellenbosch Economic Working Papers: 12/10

KEYWORDS: HIGHER EDUCATION, PUBLIC FINANCING, INCOME CONTINGENT LOAN, COST SHARING

JEL: H40, H52, I20

PIERRE DE VILLIERS
DEPARTMENT OF ECONOMICS
UNIVERSITY OF STELLENBOSCH
PRIVATE BAG X1, 7602
MATIELAND, SOUTH AFRICA
E-MAIL: APDV@SUN.AC.ZA

LIEZL NIEUWOUDT
DEPARTMENT OF ECONOMICS
UNIVERSITY OF STELLENBOSCH
PRIVATE BAG X1, 7602
MATIELAND, SOUTH AFRICA
E-MAIL: LNIEUW@SUN.AC.ZA



A WORKING PAPER OF THE DEPARTMENT OF ECONOMICS AND THE
BUREAU FOR ECONOMIC RESEARCH AT THE UNIVERSITY OF STELLENBOSCH

Shifting trends in higher education funding

PIERRE DE VILLIERS AND LIEZL NIEUWOUDT

ABSTRACT

The global increase in the demand for tertiary education, with higher education systems expanding in many countries from elite systems to universal access, necessitated changes to the nature of higher education financing. Tuition fees, or other charges (where it was previously free) were introduced, substantial increases in tuition fees (where fees previously did exist) took place and student aid systems moved away from grants towards student loans (to replace or supplement grants). The controversy and debate surrounding these issues were influenced by politics, legal issues, social policy issues and economic reasoning.

The paper firstly considers the shift in higher education financing since the 1960s in light of the focus of economic thinking in the 1960s and 1970s (the human capital model, growth accounting, views on elite versus mass systems, the private/public nature of higher education and rates of return) compared to the more recent focus on primary education, private and social rates of return and cost sharing. The global typology of allocation mechanisms is then examined. Although a myriad of allocation systems is operational, a definite shifting trend from direct to indirect funding (to support students) of institutions can be identified.

The paper subsequently explores the global workings, conditions and problems of income-contingent student loans (ICL) and then focuses on the South African trend in direct funding (including the current subsidy formula for higher education) and student support systems. The South African allocation system exhibits the global trend towards indirect funding and the South African ICL (NSFAS) is internationally highly commended.

Keywords: Higher education, Public financing, Income contingent loan, Cost sharing

JEL codes: H40, H52, I20

Shifting trends in higher education funding

Introduction

The increasing trend in global demand for higher education is evident when official world student numbers are considered. Due to (among other things) globalisation and countries' integration into the modern knowledge economy as well as an increasing awareness of the private returns to higher education, student enrolment has expanded dramatically since 2000 – especially in developing countries. The *Global Education Digest* (Unesco, 2009: 9) reports an increase in higher education student numbers worldwide of 51.7 million for the period 2000 (100.8 million) to 2007 (152.5 million). Enrolment figures for higher education “has skyrocketed over the past 37 years, growing five-fold from 28.6 million in 1970 to 152.5 million in 2007. This translates into an average annual increase of 4.6%, with the average number of tertiary students doubling every 15 years.” (Unesco, 2009: 10).

The highest growth rate in higher education enrolment was recorded in sub-Saharan Africa where student numbers increased by 10% annually between 2000 and 2005 (Unesco, 2009: 10). In comparison to other regions however, the total number of sub-Saharan African higher education students still lags behind and accounts for only 3% of global enrolment although 11.9% of the world population lives in this area (Population Reference Bureau, 2008). East Asia and the Pacific now lead the score board in terms of numbers with 46,7 million students in 2007 (31% of global enrolment) followed by Central and Eastern Europe (at 23% of global enrolment), Central and Eastern Europe (14% of global enrolment) and Latin America and the Caribbean and Arab States (both with global enrolment shares of 12%). (Unesco, 2009: 9–13)

Growing participation at higher education implies that the season is definitely changing for higher education systems globally as they are expanding to accommodate the rapidly increasing demand for higher education. There is a definite shift in higher education systems away from *elite* systems (systems where less than 15% of the relevant age cohort is enrolled) towards *mass* systems (15–50% enrolment) and in some countries even *universal* systems (with more than 50% access), following Trow's (1974) terminology. This puts tremendous strain on already stretched higher education systems given the fact that some regions' systems are incapable of accommodating higher growth rates (e.g. that of sub-Saharan Africa). Unesco (2009:10) identifies the sub-Saharan higher education systemic crisis when stating that the “[c]hanging levels of participation in tertiary

education require a significant amount of additional funding. Moreover, education planners are already faced with the challenge of recruiting qualified academic staff for systems that are doubling in size every eight years on average.” This rapid increase from the demand side leads, in most higher education systems, to fundamental changes in the funding of higher education.

In the first section of the paper we explore the dual nature of higher education – i.e. the public and private characteristics – by briefly stating the relevant theories and then discuss the profitability of investment (rates of return) in education. In the second section we explore the international practice regarding public and private funding of higher education, discuss the rationale for levying private fees and examine the types of institutions and modes of financing (both for students and institutions). The paper concludes by discussing South Africa’s New Financial Framework (NFF) system in light of the current global higher education financing trends.

Public financing of education

Globally, public expenditure on education increased quite substantially during the latter half of the previous century. By 1986 on average 11.6% of total government spending, equal to 5.4% of GDP, was channelled to education in OECD countries (de Villiers, 1996: 214–215). In 1998 the corresponding figures were 12.9% and 4.6% respectively (OECD, 2004: Table B2 & B4). In 2006 OECD countries spent on average 5.7% of GDP on education (OECD, 2009: Table B2.1). These high levels of spending on education can be linked to the development of the human capital model, formulated in the 1960s. Theodor Shultz, Edward Denison and Gary Becker did pioneering work in this regard¹. According to the human capital model, people gain productivity by further training and the market then subsequently remunerates these skilled workers better. This resulted in the belief that greater investment in human capital will lead to higher economic growth rates and that the rates of return on these investments for both government and private individuals are very profitable. With growth accounting, human capital also turned out to be an important variable in explaining economic growth. The message from these studies was very simple – invest in education if improved worker productivity and enhanced economic growth are desired. Demographic forces also led to a vast increase in the demand for higher education in the latter half of the previous century.

This stimulated investment in education at all levels of education. The latter half of the previous century was also the period where countries started to move away from treating higher education as

¹ See for example Rosen (1987) and Cohn and Geske (1990) for a good overview of these developments.

an elite system (where less than 15 per cent of the relevant age group is enrolled in higher education) towards transforming the system into what can be called mass education (where higher education enrolment is more than 50 per cent). In this transformation process the Robbins Committee's (1963) investigation of higher education funding in the UK played an influential role (Woodhall, 2007: 9–11). In this report frequent references to economic concepts and human capital occurred for the first time. The report recommended a substantial increase in public expenditure on higher education. They also looked at financing higher education through tuition fees and student loans. In the end they rejected repayable student loans because they feared that British parents will not let their daughters enrol for higher education. In a sense they were afraid that the risk aversion behaviour of parents will prevent enough female students from going to university or college.

Ten years later (1973) the report of the Carnegie Commission on higher education in the USA was published (Woodhall, 2007: 12–13). They felt strongly about equal access for everybody to higher education. To achieve this they realised that some of the direct costs of higher education should be shifted from the family of low-income students to the taxpayer. In the longer run they expected family income to increase and as more students attend higher education, more of the costs should be borne by the students themselves. In the end their proposal of higher subsidies to higher education was based on equity and not so much influenced by the magnitude of social benefits. Interestingly, although both commissions considered cost sharing, neither of them proposed that it be implemented.

Private and public nature of higher education

The controversy as to what extent the government must pay for higher education has its roots in the uncertainty about the public/private nature of higher education. Private goods are both rival (for example, if someone drinks a cool drink there will be less available to other consumers) and excludable (if I do not pay for a cool drink I cannot consume it). With public goods, like streetlights, the situation is totally different. If one person walks underneath a lamppost it does not diminish the amount of light left for other consumers and they can make use of the light irrespective of whether they paid their taxes. Once a public good is produced nobody can be prevented from consuming the good, giving rise to the problem of free riders. The question to answer is to what extent is higher education a private or public good?

Cemmel (2003) distinguishes four functions of higher education, namely training of highly skilled personnel, development of new knowledge and research, contribution to community service and an ethical function, that may include social critique. Knowledge that one student acquires in the education process does not mean that there is less knowledge available for the other students. In the training of students the contact that one student makes with a lecturer (during lectures) does not decrease the time available for the other students. In this sense higher education may be regarded as a public good. However, it is also true that the more individual time (for example during consulting hours) one student requires from a lecturer the less time is available for other students. Also, if educational institutions reserve the number of seats available to new students, the acceptance of one student implies that fewer places are available to other potential students. Higher education therefore displays certain characteristics of private goods as well. Certain groups can for instance be prevented from entering higher education by levying high fees. This is a practice that has been used since the earliest of years to prevent prospective students from poorer communities (considered to be of a lower social status) to enter higher education.

Since higher education also exhibits characteristics of private goods, the question can be posed to what extent public funding is defensible. Melck (1982: 105) mentions three reasons why the government should be involved in education, namely risk taking, uncertainty and insufficient liquidity. Young people are uncertain about the benefits that they will reap from further education and they sometimes come from families that do not value education or do not receive proper guidance in this regard. If a student enrolls in the wrong programme it might be a very costly mistake. Due to the long term nature of an investment in education, people from poor communities may be reluctant to take the risk of higher education if it is not subsidised by the public sector.

Fundamental research and research results (Cemmel's second function) forms the basis for future and applied studies. If the government makes no contribution to this research, it might not be undertaken at all. The results of the research are published in research journals and become public assets. A strong case can thus be made for public financing of such research. At higher education institutions research is also initiated by the private sector contracting institutional experts to become involved in specific research projects. Cemmel (2003) views this as part of the community function of universities and in this process the researchers face very few risks. Some researchers even have to sign confidentiality clauses and in the short run private institutions can thus keep these research results a secret. However, knowledge built on research of the past and the course content of higher

education are a function of previous research. If basic research is not properly funded the rate at which core research is undertaken will slow because more research will focus on profitable activities. In this context Cemmell (2004) sees education in the long run as a public good.

As far as the social-ethical function of education is concerned, Cemmell (2004) is of the opinion that it is not an excludable product. As long as people's human rights are not violated in the process of criticism, it cannot be seen as a public good. There are numerous studies that focus on the indirect benefits of education, like better communication, more responsible behaviour, law abiding behaviour, the involvement in and understanding of the democratic process and contributing towards the intellectual and cultural well-being of the community. These indirect benefits are not excludable and are passed on from one person to another. In this light higher education can be regarded as a public good. Higher education can also be regarded as a merit good that justifies involvement of the state in the education system because the community benefits from it.

The indirect benefits of educations have not been quantified with any great deal of accuracy. As Melck (1982: 103–105) rightly points out the positive externalities of education may result in the undersupply and overpricing of education if the provision of education is entirely left to market forces. In this respect the payment of state subsidies are justified to correct for market failures. Melck (1982: 19) states clearly that up to the 1980s no study has been done that categorically determined the magnitude of private and public benefits of education. Not much new light has since his dissertation been shed on this problem of quantifying the benefits of education. On the one hand it is very difficult to quantify the benefits of education, but it is also very difficult (and some would argue impossible) to distinguish between private and public benefits on the other.

Profitability of investment in education

One method that can be used to calculate the profitability of an investment in education is cost benefit analysis. With this method the cumulative costs and benefits are discounted to their present value and if the present value of the benefits is greater than the present value of the costs it is desirable to undertake a project. Another method, and one more generally used in education, is to calculate the interest rate that will equate the discounted values of the benefits and costs. This is also known as the internal rate of return. With this type of analysis one must clearly distinguish between the private and public nature of the costs and benefits of education, because a distinction is made between the private and social calculation (for a detailed discussion of the difference between

private and public benefits and costs of education as well as the direct and indirect components thereof, see for example de Villiers, 1984: 51–56 and 74–85). Although in theory we can fairly easily distinguish between the private and public components, it is very difficult to quantify all these items. Therefore the results of these studies must be treated cautiously.

Worldwide several studies have been done to calculate the rates of return of investment in education. Psacharopoulos and Patrinos (2004) give a good summary of the results of studies done in 98 countries over the period 1960-1999 that have been conducted on a comparable basis. These results are summarized in Table 1.

Table 1

Rate of return of investment in education

Region	Social			Private		
	Primary	Secondary	Higher	Primary	Secondary	Higher
Asia	16.2	11.1	11.0	20.0	15.8	18.2
Europe/Middle East/North Africa	15.6	9.7	9.9	13.8	13.6	18.8
Latin America	17.4	12.9	12.3	26.6	17.0	19.5
OCED	8.5	9.4	8.5	13.4	11.3	11.6
Sub-Saharan Africa	25.4	18.4	11.3	37.6	24.6	27.8
World	18.9	13.1	10.8	26.6	17.0	19.0

Source: Psacharopoulos & Patrinos (2004: 114)

Clear trends follow from Table 1. Firstly, the private rate of return is higher than the social rate of return for all areas and all levels of education. On average for the world the private rate of return for primary education is 7.7 percentage points higher than the social rate of return and the corresponding figure for secondary schooling is 3.9 percentage points. On average the private rate of return for higher education is no less than 8.2 percentage points higher than the social rate of return. This gives the impression that there is scope for individuals to contribute more towards the costs of their higher education. However, one has to remember that the table includes countries where higher education was almost fully subsidised, which increases the private rates of return to artificially high levels, because the individuals' contribution to their own education is very small. The private rates of return is higher than the social rates of return for all educational levels, but the rates normally decrease as the level of education increases. The rates of return in developing

countries are normally higher for all levels of education than the rates in developed countries. When one looks at the sub-Saharan Africa region (which South Africa forms part of) it is clear that these rates of return are the highest of all regions in the world for all levels of education. Especially the private rate of return on higher education is very high.

The high private rates of return is a good argument to increase the private fees of education. The implication of these high rates is that private fees can be increased without the fear that it will become unprofitable for individuals to invest in their own education. The fairly high social rates of return indicate that investment in education is a profitable investment for the state. There is growing evidence that the social rates of return have been underestimated (see for example Keswell and Poswell, 2005) that will strengthen the argument to increase public spending on higher education. Here it is important to draw a distinction between different fields of study, because there are not uniform rates of return for all higher education programmes. Studies quoted by Psacharopoulos (1994: 1329–1331) indicate that the rates of return in different fields of study differ substantially. This is confirmed in a study quoted in the Economist (2003) of British learners. These rates indicate that there is a case to be made in favour of the introduction of differentiated tuition fees for different fields of study and that certain fields of study may be financed to a larger extent by the students themselves.

According to Melck (1982: 114–115) there are advantages on both the demand and supply sides of the education market to levy private fees. From an administrative point it is more efficient, but it also fulfils the same role as the levying of a direct tax. With different fees between higher education institutions the students themselves can decide about possible rates of return. With public provision it is frequently found that no institution excels, but that all institutions tend to be average. Efficiency on the supply side can be increased by greater competition and in such conditions institutions normally adapt more easily to a changing environment and they tend to accommodate a wide range of students to a larger extent.

Cost-sharing

The belief in some circles that higher education is a basic right assumes that education is a public good. This, linked with article 29 of the Constitution of South Africa, can create the belief that education in South Africa should be primarily publicly financed. With the most recent changes in policy by institutions like the World Bank, the World Trade Organisation and individual countries

like the United Kingdom that are of the opinion that the individual should make a greater contribution towards the costs of higher education, it becomes clear that higher education cannot be seen as a pure public good. The higher return to money invested in primary education relative to higher education makes it more profitable for countries to invest more in primary education. In the 1990s this was also accompanied by lower donor funding for higher education. This led to more countries introducing or increasing tuition fees (Woodhall, 2008: 20). It seems as though individuals will in future contribute to a greater extent towards their own higher educational costs.

It is important to remember that the finances for higher education originate from only four sources. With direct subsidies to higher education institutions it is the taxpayers that finance higher education. With cost-sharing the other parties involved must contribute as well. This includes students that have to pay higher tuition fees or the parents of students that financially support their children. In the last instance higher education institutions also receive philanthropic funding (the so called third income stream). If government contributions to higher education decrease it means that the shortfall must be financed by one of the last mentioned three sources.

Although it is experienced worldwide that cost-sharing is used more generally one has to be cautious when introducing such a system. The popularity of higher education, linked with limited public funding for higher education, means that cost-sharing will stay a hotly debated topic by politicians and policy analysts alike (Johnson, 2004: 410). If cost-sharing is accepted as the way forward it is important that mechanisms are put in place that will make it possible for students from poor communities still to be able to afford higher education (Barr 2004).

Although cost-sharing is no longer optional for most higher education systems, the ways in which cost-sharing are implemented vary greatly. Cost-sharing, in different versions, is generally increasing throughout the world. Cost-sharing has led to heated policy debates in the past few decades and although “cost-sharing may be better viewed as a concept and a general policy direction than a specific policy prescription or agenda” (Johnstone, 2004: 410), it has often been (mis)used. Johnstone (2004: 410) emphasises the importance of cost-sharing as a goal and contextualises its controversy when he asserts that “the extraordinary need for, and general popularity of, higher education, plus the apparent limitation of public revenues and the ever fierce competition for these scarce public revenues means that the goal of cost-sharing will continue to intrigue politicians and policy analysts, even in the face of inevitable political opposition.”

Allocation mechanisms in higher education financing

The realities of moving towards cost-sharing in higher education systems include the important question of general access. As higher education institutions become more dependent on tuition fees than on government funds, needy students might be crowded out on financial grounds, exacerbating equity issues. Implementing cost-sharing necessitates strategic thinking on providing for students from poor backgrounds (Woodhall 2007: 27; Johnstone 2009: 15).

The International Comparative Higher Education and Accessibility Project (ICHEFAP, 2009) documents the practise of cost-sharing (and the provision of financial assistance) in 47 countries. Higher education typically consists of a combination of private and public institutions. In each country the relative combination between private and public institutions differs. It is a world-wide phenomenon that the relative contribution of the public sector towards higher education is decreasing. For example, the so-called 'rijksbijdrae' in the Netherlands decreased from 84.4% of total income in 1985 to 69% in 2001 (Jongbloed & Salerno, 2003: 32). Individuals' contributions are increasingly expected to cover the cost of their own education to a greater extent. This tendency is in line with the world-wide high private rate of return on higher education. Due to the relative decrease in public funds, higher education institutions themselves need to generate more income to decrease the deficits.

In almost all countries public financing schemes exist to enable students from poor communities to afford higher education. This support ranges from bursaries or scholarships to loans with different repayment or interest rate criteria. In these systems, a definite trend is noticeable towards innovative allocation mechanisms that allow both public and private funds to go further in meeting the challenges that higher education systems face around the world. It is further evident that as the before mentioned concepts (e.g. cost-sharing, private returns) became increasingly popular in general, higher education systems started to implement these concepts in the design and implementation of their financing structures and mechanisms.

Table 2*Global typology of allocation mechanisms*

I. Direct Public Funding of Institutions	II Support of Students/Indirect Funding of Institutions
<p>1. Funding instruction, operations and investments</p> <ul style="list-style-type: none"> 1.1 Negotiated or ad hoc budgets 1.2 Categorical or earmarked funds 1.3 Funding formulas 1.4 Performance-based funding <p>2. Funding of research</p> <ul style="list-style-type: none"> 2.1 Instruction and research funded together 2.2 Research project funding 2.3 Block grant funding for research 	<p>1. 'Demand side' vouchers</p> <p>2. Government grants & scholarships</p> <ul style="list-style-type: none"> 2.1 Program administration 2.2 Eligibility and coverage <p>3. Tax benefits</p> <ul style="list-style-type: none"> 3.1 Current tuition fees 3.2 Family allowances <p>4. Student loan models</p> <ul style="list-style-type: none"> 4.1 Repay plans 4.2 Sources of funds 4.3 Expenses covered 4.4 Eligible to borrow 4.5 Level of subsidy <p>5. Part grant /part loan</p> <ul style="list-style-type: none"> 5.1 Loans that become grants 5.2 Loan forgiveness

Source: Salmi & Hauptman (2006: 84–91)

The common funding possibilities and practises in global higher education systems can generally be divided into two broad categories: those mechanisms that mainly rely on direct public funding of institutions and those where a growing share of public funds are earmarked for the support of students or so-called indirect funding of institutions (Salmi and Hauptman, 2006). In an extensive comparative evaluation of global higher education allocation mechanisms, Salmi and Hauptman (*op cit*) survey innovations in higher education funding. Table 2 summarises the broad global typology of higher education allocation mechanisms.

Governments in most countries provide a large share of public funding directly to institutions to support their financing of instruction, recurrent expenses, capital investment and university-based research. The traditional way of allocating funds for instruction, operations and investment typically followed variations of three mechanisms: negotiated or ad hoc budgets where negotiations between government and the institution determined the level of funding and the funds distributed to the institution either as line-item budgets (with rigid restrictions on what the money can be spent on) or a single block grant (giving the institution more spending autonomy); categorical or earmarked

funds where the funds are typically provided for a specific purpose or allocated to a group of institutions perceived to have previously been under-funded (South Africa used to earmark funds for predominantly black institutions before the mergers of institutions took place); and funding formulas (first column, table 2). Funding formulas (developed by political entities or buffer bodies) are typically used to allocate funds for the recurrent expenses of institutions and include a variety of factors (like inputs such as staff or students, costs per student, priority based funding and performance-based formula components) in order to determine the specific formula (South Africa's New Funding Formula (NFF) is an example). Performance-based funding is a non-traditional funding mechanism that has been adopted by a number of countries in recent years to fund operating budgets (partially or completely) or capital investment. Four performance-based funding types are distinguished – performance set asides, performance contracts, competitive funds and payment for results (Salmi & Hauptman, 2006: 8–23).

Funds to support university-based research are traditionally allocated by funding instruction and research together or through research project funding (where proposed projects of faculty are funded). A less traditional way of allocating funds for research is by a block grant allocation that is generally not project specific and where the size of the block grant may be based on the institutional demonstrated capacity or centres of research excellence. (A further mechanism is though demand side funding of research but that is more indirect in nature.) (Salmi & Hauptman, 2006: 23–27)

As the goal of cost-sharing gains popularity, countries provide public funds not only directly to institutions but a growing share of these funds indirectly to students and their families. These funds are allocated in the form of grants and scholarships, tax benefits and a myriad of student loans. Using 'demand side' vouchers is one way of allocating the funds to the user, but is not equally common for higher education as for primary education (table 2, column II). In most countries, students receive non-repayable aid which is provided through a combination of how the aid program administration takes place (typically by institutions or through student aid vouchers) and eligibility is determined, and coverage established. Financial need is in most countries the primary factor (through means-testing) to establish the students' eligibility for grants, and academic merit the factor for merit-based scholarships with some countries (like the Czech Republic, France, Malta and Slovakia) using both financial need and the academic merit of the student to establish eligibility. Some countries support students through granting tax benefits. Generally by allowing

students and/or families to offset current tuition fees or through family allowances, governments help parents to offset the expenses of children while they study. (Salmi & Hauptman, 2006: 28–33)

In more than 75 countries around the world [Shen & Zideman (2007) quoted by Johnstone (2009: 1)] the most popular way governments support students is through student loan models (table 2, column II). A variety of student loan models exists that can be defined firstly according to the type of repayment schedule that the policy makers developing the student loan plan decide on, secondly according to the sources of the funds i.e. how the loans are financed, thirdly according to the type of expenses (exclusively either tuition or living expenses or both) covered, fourthly in terms of the eligibility of students for the loans and finally according to the level of subsidy provided (high level if the subsidy is at a value of more than 10% and low level if it is less than 10% of the face value of the amount borrowed). Two forms of student loan repayment plans are typically distinguished: The mortgage-type (or fixed-schedule, or conventional) loan and the income contingent loan (ICL). (Graduate tax and human capital contracts are other repayment options that are not really in use.) Under ICL, loans can either be repaid in a system of mandatory income contingent repayment where “the borrowers repay based on their income after graduation and the amount borrowed” (Salmi & Hauptman, 2006: 89) (with fees initially paid either by students and families or government) or in an optional income contingent repayment system where borrowers with amortised obligations have the option to repay on the basis of their after graduation income (Salmi & Hauptman, 2006: 33–43).

One further arrangement of providing student aid (part loan/part grant) is when a portion of the aid is in the form of a loan and a portion as a grant/scholarship or when a part of what the borrower owes, is waived (or forgiven) if the graduate accepts a certain type of employment (e.g. teachers or doctors that agree to work in rural areas for an extended period of time). (Salmi & Hauptman, 2006: 43–44)

Although a myriad of allocation mechanisms are operational in the financing (and allocation thereof) in higher education, a definite trend is distinguishable. There has been a shift from direct public funding towards a more indirect funding of institutions (support of students). Because of the access and equity issues that higher education systems face, student loan models have become increasingly important. ICL (as one of the student loan models) is gaining popularity in developed

and developing countries alike (e.g. Australia, Scotland, Thailand, UK, Sweden, Chile, New Zealand and South Africa).

ICL explained

An ICL is a loan that is repayable as a fixed proportion of a graduate's income (as mentioned above). According to Chapman (2005: 1) "[t]he critical and defining characteristic of an ICL is that the collection of the debt depends on the borrowers' future levels of income. Capacity to pay, and not time, defines the repayment obligation".

The success of an ICL system depends on the efficient administration thereof and has the chance of being successful only if at least two conditions are met. "[A]n income-contingent loan approach requires that a government is able to do at least two things efficiently. First, students' incomes need to be recorded accurately over time ... Second, there has to be an efficient collection system ... if there are simple ways for former students to avoid repayment obligations, income-contingent approaches will not work ..." (Chapman & Ryan 2002: 79 in Woodhall 2007: 34)

It is mainly when these two conditions are not met that the problems with ICL surface. When the government agencies that deal with these loans are inefficient in administration and coordination in the system is lacking, higher risks (especially in non repayment of loans) result. In Australia for instance, HECS (Higher Education Contribution Scheme) graduates were more prone to avoid paying tax than any other citizen. Johnstone (2009: 11-12) cautions that although politically popular, an ICL system is not necessarily financially suitable for all countries.

The financing of the South African higher education system

Public spending as a percentage of GDP is frequently used to compare spending patterns of different countries. In 2007 an average of 0.83% of GDP was spent on higher education in 102 countries (UNESCO Institute of Statistics, 2004: simple average calculated from Table 14). For 30 OECD countries public spending on higher education in 2006 amounted to 1.4% of GDP (OECD, 2009: 218). Although studies indicate that it is profitable for the state to invest in education, public funding of higher education in South Africa decreased over time. While 0.86% of GDP was spent on higher education in 1987 it decreased to only 0.59% of GDP in 2007 (De Villiers and Steyn, 2007: 140). South African expenditure on higher education thus lags behind what is paid in the rest of the world.

Figure 1
Public expenditure on higher education in South Africa: 1987-2009

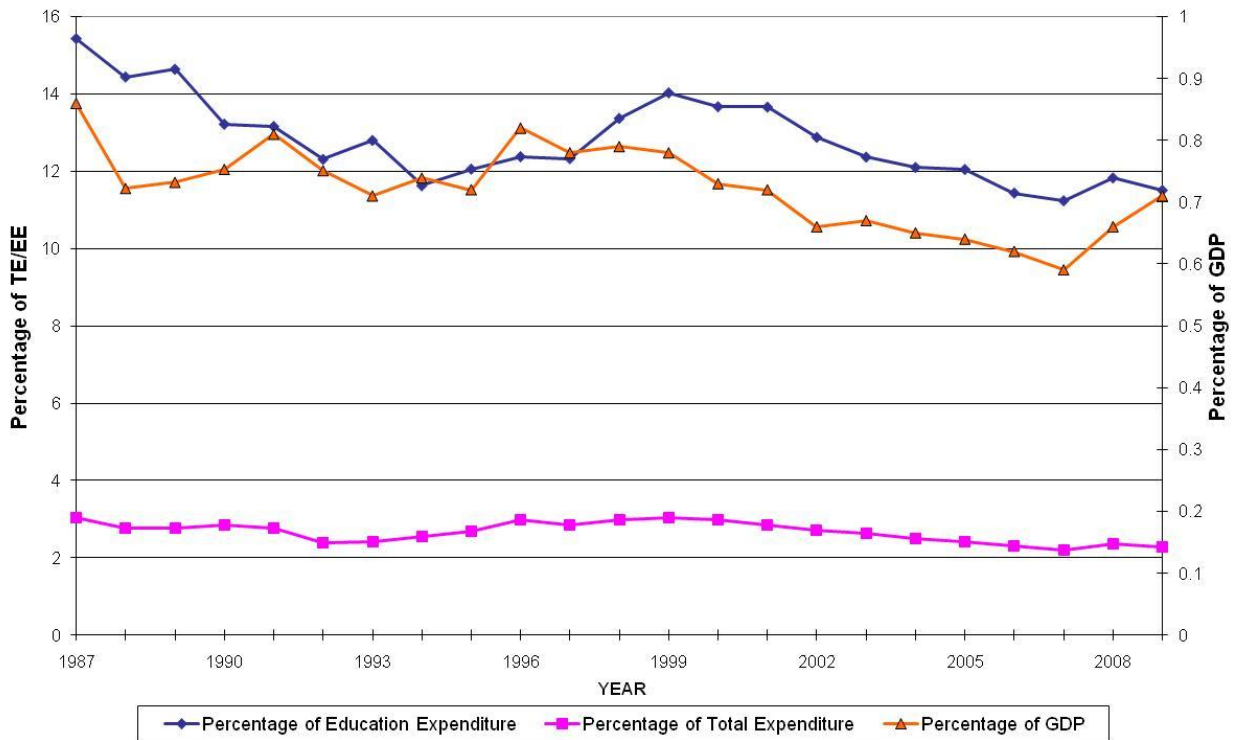


Figure 1 gives a clear indication what happened to public expenditure on higher education over the last two decades. The left axis measures the percentage of higher expenditure as a percentage of total expenditure by the state and as a percentage of educational expenditure. The right axis measures higher education expenditure as a percentage of GDP. In 1987 3.03% of total expenditure by the state was spent on higher education. This percentage increased slightly to 3.05% in 1999, but since then decreased steadily to 2.29% in 2009. As a percentage of educational expenditure the proportion of higher educational expenditure dropped from 15.43% in 1987 to 14.03% in 1999 and thereafter decreased even further to 11.51% in 2009. According to possible future funding scenarios of higher education by de Villiers and Steyn (2007), the chances are very slim indeed that the higher education sector in South Africa will receive much (if any) financial relief in the foreseeable future. The increase in public expenditure on higher education as percentage of GDP for 2008 and 2009 can largely be attributed to earmarked allocations to institutions to improve infrastructure and to increase output efficiency (Ministry of Higher Education and Training, 2009).

The decreasing role of the state can also be seen in the state appropriations to higher education institutions in South Africa. In 1987 state appropriation was 53% of the income of universities and 68% of the income of technikons. In 2003 these percentages decreased to 41% and 52% respectively (Steyn and de Villiers 2006). In real terms state appropriations per weighted full time equivalent student at university decreased by 36% from R25 125 in 1986 to R16 199 in 2003. At technikons there was a real decrease of 43% from R22 121 in 1987 to R12 515 in 2003. Higher education institutions reacted to this by increasing tuition fees. The result was that tuition fees increased from 13% of the income of universities in 1987 to 23% in 2003. At technikons this percentage increased from 12% to no less than 30%. In real terms tuition fees at universities increased by 49% from R6 068 in 1986 to R9 030 in 2003. At technikons the increase was 85% in real terms from R3 812 in 1987 to R7 056 in 2003.

The result of this increase in tuition fees was that students found it more difficult to afford higher education. Student debt at higher education institutions more than doubled between 2001 and 2003 and student debt written off doubled between 2000 and 2003. This happened despite the introduction of the National Student Financial Aid Scheme (NSFAS) in 1995 to help needy students to afford higher education. The scheme started with a mere R40 million in 1995 and was extended to R333 million the next year to 73 140 students. In 2007 R1.7 billion was allocated to NSFAS and 140 901 awards were granted (NSFAS 2008: 10). In 2008 this amount increased substantially to R2.1 billion. Without the financial assistance of the NSFAS the debt situation of students would have been much worse. In 2008 93% of the receivers of NSFAS awards were African, 4% was white, 2% coloured and 1% Indian. Recovered funds also increased dramatically from a mere R30 million in 1998/99 to R479 million in 2007/08.

Current financing formula for higher education in South Africa

The New Funding Formula (NFF) was implemented in 2004. With the previous SAPSE formula the size of subsidy payments were roughly determined on a 50:50 weighting between input and output variables. With the current system the state has more control about who receives the subsidies and it is to a larger extent driven by input factors (De Villiers and Steyn, 2008: 45-47). In 2006 87% of the allocations were determined by the subsidy formula, while the remaining 13% were earmarked allocations for NSFAS, foundation payments, restructuring, etc. The subsidy consists of 4 block

grants, namely a teaching input block grant, a teaching output block grant, a research output block grant and a block grant for other institutional factors.

The input block grant is based on full-time equivalent student numbers per funding group (human sciences and natural sciences) and study levels (undergraduate, honours, etc.). In 2006 65% of the direct subsidy was paid through this grant. The teaching output block grant (15% of direct funds in 2006) is based on qualifications awarded, but also a payment to underperforming institutions (which then is actually an input grant). The research output block grant (13% in 2006) is determined by research output (publications in accredited journals, research masters degrees, doctoral degrees) as well as a grant paid to underperforming institutions (which again is an input grant). The remaining 7% of the subsidy was paid to certain higher education institutions based on institutional factors like the size of the institution (large institutions enjoy economies of scale) and the number of disadvantaged students at the institution. While half of the previous subsidy was based on outputs, only about 26% of the current subsidy is based on outputs.

Conclusion

Student enrolment numbers in higher education has been increasing over the past five decades. Against this demand-side expansion, most governments did initially provide public funding in order for the higher education institutions to supply sufficient education. The debate regarding who should fund higher education (the public or private sector) continues partly due to the inability to precisely quantify the private versus public rates of returns to higher education. Although government appointed commissions of inquiry in the UK and USA into the funding of higher education (e.g. Robbins and Carnegie) considered the merits of cost-sharing, it was only at the turn of the 20th century with the massification of higher education that cost-sharing was seriously reconsidered. With the World Bank's emphasis on the importance of primary education and the general emphasis on the high rates of returns on primary education, government as well as donor funding moved away from higher education to primary education. Cost-sharing can be justified by the high private rate of return to higher education although a growing body of empirical evidence suggests that the social benefit of higher education is probably underestimated.

The re-allocation of public funding (that has been decreasing) towards supporting students instead of higher education institutions directly, put more financial responsibility on the other three private

sources (i.e. students, parents and donors) that manifested in the changing nature of higher education allocation mechanisms. This global cost-sharing trend necessitated the support of especially students from poor backgrounds, currently mainly through the ICL systems. South Africa is no exception to this trend as is evident from its current public financing system through the NFF where government provides support to students through the NSFAS.

Bibliography

- Barr N. 2004. Higher Education Funding. *Oxford Review of Economic Policy*, 20(2): 264-283
- Cemmel J. 2003. *Public vs Private Higher Education: Public Good, Equality, Access. Is Higher Education a Public Good?*, jamespearl@hotmail.com
- Cemmel J. 2004. *Why Invest More (Public Funds) in Higher Education?* Bristol: The Graduate School of Education, University of Bristol. Available [Online] at <http://www.bris.ac.za/education/research/centres/ges/point/publicfunds>
- Cohn E & Geske TG. 1990. *The Economics of Education*, Oxford: Pergamon Press
- De Villiers AP. 1984. *Die toepassing van koste-voordeelanalise op opleiding. Met besondere verwysing na Suid-Afrika*. Unpublished Masters dissertation, University of Stellenbosch
- De Villiers AP. 1996. Die effektiwiteit van Suid-Afrika se onderwysstelsel. 'n Ekonomiese analise. Unpublished Doctoral dissertation, University of Stellenbosch
- De Villiers P & Steyn G. 2007. The changing face of public financing of higher education, with special reference to South Africa. *South African Journal of Economics*. 75(1): 136-154
- De Villiers AP & Steyn AGW. 2008. Effect of changes in state funding of higher education on higher education output in South Africa: 1986-2007. *South African Journal of Higher Education*, 23(1): 43-68
- Economist. 2003. Money back, *Economist.com*, 19 June. Available [Online] at <http://www.economist.com/research/backgrounders>
- ICHEFAP. 2009. *Higher Education Finance and Cost Sharing Profiles by Country*. Available [online] at <http://www.gse.buffalo.edu/org/IntHigherEdFinance/>. Accessed 20 August 2009.
- Johnstone DB. 2004. The Economics and Politics of Cost Sharing in Higher Education: comparative perspectives. *Economics of Education Review*. 23 (4), 403-410
- Johnstone DB. 2009. Conventional Fixed-Schedule Versus Income Contingent Repayment Obligations: Is there a Best Loan Scheme? Financial Support to Students through Student Loans, edited by Adrian Zideman in *Higher Education in Europe*. 34 (2)

- Keswell M & Poswell L. 2005. Returns to education in South Africa: A retrospective sensitivity analysis of the available evidence. *South African Journal of Economics*, 72(4): 834-860
- Melck AP. 1982. *Methods of financing universities with special reference to formula funding in South Africa*, Unpublished D.Comm. dissertation, University of Stellenbosch
- Ministry of Higher Education and Training. 2009. *Ministerial Statement on Higher Education Funding: 2009/10 to 2011/12*. Pretoria
- NSFAS. 2008. *Annual Report 2008*. Available [Online] at http://www.nsfas.org.za/resources/0/NSFAS_Annual_Report2008pdf
- OECD. 2008. *Education at a Glance 2008*. Available [Online] at <http://www.oecd.org/dataoecd/23/46/41284038pdf>
- OECD. 2009. *Education at a Glance 2009*. Available [Online] at <http://www.oecd.org/dataoecd/23/46/41284038pdf>
- Population Reference Bureau. 2008. *2007 World Population Data Sheet*. Available [Online] at www.prb.org
- Psacharopoulos G. 1994. Returns to Investment in Education: A Global Update, *World Development*, 22(9): 1325-1343
- Psacharopoulos G & Patrinos A. 2004. Returns to Investment in Education: A Further Update, *Education Economics*, 12(2): 111-134
- Rosen S. 1987. Human Capital. In Eatwell J; Milgate M & Newman P (eds). 1987. *The New Palgrave: A Dictionary of Economics* (Volume 2), London: Macmillan Press, 681-690
- Salmi J & Hauptman AM. 2006. Innovations in Tertiary Education Financing: A Comparative Evaluation of Allocation Mechanisms. *Education Working Paper Series*. (4). 38324. September: The World Bank
- Steyn G & de Villiers P. 2006. The impact of changing funding sources on higher education institutions in South Africa. Research Report for the Council of Higher Education, *Higher Education Monitor* No 4
- Trow M. 1974. Problems in the Transition from Elite to Mass Higher Education. In: OECD, *Policies for Higher Education: General Report on the Conference on Future Structures of Post-secondary Education*. Paris: OECD
- UNESCO Institute of Statistics. 2004. *Global Education Digest 2004: Comparing Education Statistics across the World*. Montreal

UNESCO Institute of Statistics. 2009. *Global Education Digest 2009: Comparing Education Statistics across the World*. Montreal

UNESCO. 2009. *Global Education Digest 2009 – Comparing Education Statistics across the World*. Available [Online] at http://www.uis.unesco.org/ev.php?ID=7628_201&ID2=DO_TOPIC

Woodhall M. 2007. Funding Higher Education: The Contribution of Economic Thinking to Debate and Policy Development. *Education Working Paper Series*. (8). December: The World Bank