

## Options for Financing Lifelong Learning

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## Abstract

How should lifelong learning be financed? This paper attempts to answer the question by creating a framework for analyzing different education financing mechanisms in light of the particular characteristics of lifelong learning. The framework compares the different financing alternatives on four dimensions: (1) who ultimately pays for the education, (2) who finances its immediate costs, (3) how payments are made, and (4) who collects the payments. Specific characteristics of lifelong learning are then used to determine which among the financing alternatives are most useful. The characteristics are that the individual should (1) decide what and where to study, (2) carry a significant part of the financial burden, and (3) be encouraged to continue learning through all life stages.

The financing alternatives are analyzed according to who ultimately pays for the education. Hence, the alternatives are classified either as cost-recovery or cost-subsidization alternatives. Cost-recovery alternatives include traditional loans, a graduate tax, Human Capital Contracts and Income-Contingent Loans. Subsidization alternatives are those in which the state directly subsidizes institutions or in which the state gives vouchers to students. The analysis concludes that combining Income-Contingent Loans and Human Capital Contracts with vouchers is the most efficient and equitable method for financing lifelong learning.

The paper concludes with a discussion on the role of governments and multilateral organizations in improving the financing of lifelong learning. Shifting towards cost-recovery alternatives, focusing on collection of payments and aiming for the involvement of private capital are assessed as key issues that should be addressed to ensure that lifelong learning will be available for all equitably and efficiently.

## Options for Financing Lifelong Learning

<b>INTRODUCTION.....</b>	<b>4</b>
<b>I. A FRAMEWORK FOR ANALYZING ALTERNATIVES IN FINANCING LIFELONG LEARNING.....</b>	<b>4</b>
<b>A General Framework for Analyzing Education-Financing Policies.....</b>	<b>4</b>
<b>Principles for Financing Lifelong Learning .....</b>	<b>9</b>
<b>II. POLICY OPTIONS FOR FINANCING LIFELONG LEARNING .....</b>	<b>12</b>
<b>Cost-Recovery Alternatives .....</b>	<b>12</b>
<b>Subsidization Alternatives .....</b>	<b>22</b>
<b>Combining Alternatives to Succeed.....</b>	<b>26</b>
<b>III. CONCLUSIONS.....</b>	<b>26</b>
<b>The Preferred Model .....</b>	<b>26</b>
<b>The Role for Governments .....</b>	<b>27</b>
<b>The Role of the World Bank .....</b>	<b>28</b>

## Introduction

Lifelong learning is an important policy topic for government. This assumption is based on the impact of additional training on economic growth and on income distribution, particularly in an age when previously acquired knowledge is depreciating faster than before. The relevant question for this paper is how to finance lifelong learning so that a country can benefit from the advantages of increasing its citizens' accumulation of human capital.

I have organized this paper with two main objectives in mind. The first objective is to create a framework for systematically analyzing alternatives for financing lifelong learning. The second objective is to analyze the main options that can be used to finance lifelong learning. The paper concludes with guidelines about the role that different players, including the World Bank, should play in financing lifelong learning in light of the available options.

## I. A Framework for Analyzing Alternatives in Financing Lifelong Learning

This section consists of two parts. The first part provides a framework for analyzing different schemes for financing education in general. The second part enunciates the principles that should prevail when designing mechanisms for financing education, particularly for lifelong learning.

### ***A General Framework for Analyzing Education-Financing Policies***

It is convenient to develop a framework to better understand the differences between options for financing education. The following framework analyzes each instrument according to the following dimensions: (1) who ultimately pays for education, (2) who provides the financing, (3) who collects the payments, and (4) what financing mechanism is used. Each of them is explained in more detail below.

#### ***Who ultimately pays for the financing***

This dimension of education financing asks who ends up paying for education costs over a lifetime. It should not be confused with who pays at the point of use, which is part of the *initial* financial arrangements. Major parties involved in the financing of education are: (1) the state, (2) employers, (3) other private entities, and (4) students and close relations.

Consider first arrangements where the state provides funds for education. This arrangement is not considered the best for two main reasons: (1) it is inequitable and (2) states simply do not have enough resources to cover the demand for education.

Arrangements where the state provides most of the funds are inequitable because they use society's resources for an investment where the individual is the main beneficiary. The second limitation is a consequence of constrained national budgets combined with increasing demand for education services.

The way in which the state makes its contributions is relevant given the economic results it generates. There are two possibilities: (1) the state gives the resources to institutions, also known as supply-side financing, or (2) the state gives the resources to students, also known as demand-side schemes.

Supply-side financing is the prevalent scheme today. The criteria used to distribute resources among schools are often arbitrary and based on historical developments, and often incorporate other performance-based criteria marginally. This state contribution, which often includes the running of institutions by the state, and which includes the idea that the state ultimately pays for education, has been increasingly recognized as inefficient (see Ziderman, 1995). Consequently, proposals to increase the state funding of educational institutions have concentrated on schemes where students receive funding from the state, also known as demand-side schemes.

Demand-side schemes are becoming the most popular alternative, and a whole range of arrangements has been devised to implement such (see Patrinos, 1997). Vouchers, entitlements, tax credits and other similar instruments are examples of this kind of funding. Less evident, but very relevant for this discussion, is the *subsidization of student loans*, which should also be included in this category.

A second source of funding comes from employers. They benefit from having access to an educated workforce and should thus be willing to compensate for this benefit. They can also benefit themselves by receiving knowledge from educational institutions. Regarding the benefit of an educated workforce, Becker's (1993) analysis shows that employers will only be willing to cover the costs of education and training when the student acquires particular skills that cannot be transferable to other jobs. Conversely, they are not willing to pay for general, easily transferable skills. With respect to companies receiving knowledge, universities have been shifting towards offering additional services to business, a process called *revenue diversification*, but fees from these services remain insufficient to cover education costs.

A third funding source is the "charity" of private entities, such as NGOs and religious organizations. These entities invest resources in education without seeking a monetary return on their investment. They constitute many of the grants available for students and are usually directed at students in need of financial aid. However, the resources that society can spend on education without any expected return are limited, and these organizations will never be able to provide all the funding required to meet the increasing demand for higher education and lifelong training.

The fourth source of funding is the student. Modern economic literature (starting with Friedman (1955) and Becker (1993)) recognizes the student as the main beneficiary of

education and training, and also as the only party that can eventually contribute in a significant way to covering education costs. It is also recognized that having the student pay for education costs is equitable and efficient. This arrangement is equitable because the student is the greatest beneficiary of additional training received; it is efficient because students then have an economic incentive to shop around for the best educational institution to spend their money on, creating competition among schools.

Several authors (see for instance Barr, 2001) point out the impossibility of arriving at a “perfect” combination among these sources of funding, particularly with regard to the proportion between state and student funding. On one hand, theory suggests that a system completely state funded (no student fees) is not equitable. On the other hand, some funding is required to attract certain groups who have been systematically marginalized from education opportunities. Any solution will have to consider the constraints of the state for funding education but must not deny its important role in promoting equal opportunities in education. Externalities are also a reason why government funding would be required. However, there is no conclusive evidence on the magnitude of externalities, particularly from lifelong learning, and they are considered to be relatively small. Thus, public funding of lifelong learning to address externalities will only be considered marginally in this paper.

### *Who Finances Education*

Whereas the previous section was concerned with who ultimately pays for education, this section is concerned with who provides the immediate funding for education at the point of use. This question is relevant because it is current resources, not future ones, which allow institutions to function on an everyday basis. Thus, *the principle that students should pay for education should be combined with the principle that education should not require payments at the point of use*. If payments are demanded from the student, only students who have resources before studying will be able to pay the costs of the investment. Upfront financing of education is key to making students pay for education without harming access to disadvantaged groups.<sup>1</sup> The major sources for the financing of education are (1) the private financial sector, (2) the state, and (3) students.

The first alternative, private sector financing, should enable investment in education in an efficient market. Private financing is not limited to financial institutions, though they are the natural providers of capital. Other possibilities are the educational institutions themselves and employers. Three examples of instruments that they can use are private loans, Human Capital Contracts and income-contingent loans.<sup>2</sup> Other instruments include risk-sharing alternatives that might make a financial scheme viable. Unfortunately, the education market is not efficient, and thus relying on the private sector alone to provide

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<sup>1</sup> This does not mean that perfect financing would solve the issue of access to education. In fact, socioeconomic groups systematically misinformed regarding the value of investments in education will tend to under-invest in it. Other arrangements besides perfect financing schemes are required to attract those sectors of the population.

<sup>2</sup> The definition and characteristics of these instruments are discussed in the second section of this paper.

the funds for education is not feasible, at least while the inefficiencies are not addressed.<sup>3</sup> However, the involvement of private sector financing in education, even if only partially, is fundamental for its expansion.

The second source of financing is the state. Under this arrangement the state provides the resources initially, but expects the student to ultimately pay. The most prominent examples are public student loans, including some income-contingent loans, and the graduate tax. The use of the state for financing education is a response to the lack of private funding for education. However, current budgetary constraints do not allow governments to meet the increased demands for higher and continuing education.

The third alternative for financing education is the student, and as an extension, his or her family. This alternative is the only one available when the others are not, denying access to higher and continuing education to the student who does not have the resources to pay for it.

### *Financing Mechanism*

The financing arrangement between the funding agency (state, private, etc.) and the individual can take many different forms. The following description offers an overview of the major alternatives available.

Consider loans first. Although they are the most straightforward mechanism for making capital available, they are not a good alternative for financing education. The most common type, also called “mortgage-type”, expects students to pay a fixed amount each period, typically per month, for a certain amount of time. The main problems with this kind of loan are that it does not adapt to the needs of the student and leaves lenders with little protection against default.

One way to adapt loans to the needs of students is to match required payments with the student’s capacity to pay. The simplest solution is to create a schedule in which payments increase according to how a student’s income is supposed to increase. This particular kind of loan is called a graduated loan. The next step in making loans more accessible to students is to provide additional flexibility to take into account special circumstances such as unemployment, further training, or periods of low-income. Ideally, payments could be made at the discretion of the student, almost like credit card payments. However, flexibility requires a price and presumably a more flexible instrument would become more expensive for students. Also, complete flexibility might not be realistic as this may encourage defaults, making the system unsustainable. Nevertheless, additional flexibility as a solution for private education financing has been identified as key to improving the options for students.

Friedman (1955) suggested equity financing, the method used for investing in high-risk investments, as a possible approach to financing education. This arrangement

compensates investors by allowing them a possibility of higher returns for the higher risk they take on when financing students. This kind of financing would demand from a student a percentage of his or her income during a specific period of time. Such an instrument is a Human Capital Contract.<sup>4</sup>

Finally, an intermediate approach between loans and equity-like investments has been gaining popularity since the 1970s: income-contingent loans. These loans combine the flexibility of Human Capital Contracts with the “fixed-obligation” characteristic of loans. This mechanism, as well as the other ones, will be studied in further detail in this document.

### *Who Collects Payments*

The experience of payment collections in countries with publicly collected income-contingent loans, such as in Australia, and in countries where private entitlements are collected along with taxes, such as the private pension fund in Chile, open up the possibility for combining different kinds of financing with two main collection methods: private and public. Private collection of payments is what banks use to collect their debts. Public collection uses existing institutions, such as taxing authorities, to collect education payments.

The distinction between private and public collection of payments is relevant, since it requires very different degrees of participation from the state. In the case of private collection, the state need only enforce contracts. In contrast, in the case of public collection the state enforces law into its collection mechanism and also uses its tax-collection agency to enforce payments. Public collection of payments is relevant because it provides a cost-effective way of collecting payments from students, using the already existing state machinery.<sup>5</sup>

### *Locating Alternatives According to the Framework*

The previous discussion is summarized in the following table. Notice that most financing schemes are actually a combination of these instruments.<sup>6</sup>

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<sup>4</sup> Human Capital Contracts and a related instrument, the Graduate Tax, are analyzed in the second part of this paper.

<sup>5</sup> This is the reason why Barr (2001) calls it to ‘piggy-back’ on the state.

<sup>6</sup> All the mechanisms that the author knows of are an “implicit” combination of instruments. In the simplest case, a loan offered with a subsidized interest rate is a combination of a loan and a subsidy from the state, a voucher proportional to the value of the loan. It is worthwhile to mention some benefits that can arise from stating explicitly the instruments embedded in a financial mechanism: (1) easier access to private markets, since the flows can be understood easier, (2) the risk embedded by the different instruments can be separated and assigned to different parties, and (3) presumably instruments are easier to understand by policymakers as well as consumers.

**Table 1: Main Instruments for Financing Education**

Who Ultimately Pays	Who Finances?	Collection	Financing Mechanism	Instrument
Student	Student	N/A	N/A	Education Savings Accounts
	Private	Private	Fixed	Private Loan
			Combined	Private Income Contingent Loan
			Variable	Human Capital Contract
		Public	Fixed	
			Combined	Institutional Income-Contingent Loan
			Variable	Institutional Human Capital Contracts
	Public	Private	Fixed	Privately Collected Public Loan
			Combined	
			Variable	
		Public	Fixed	Public Loan
			Combined	Public Income-Contingent Loan
			Variable	Graduate Tax
Employer	Public	Public	Variable	Employer's graduate tax
Government (tax-payer)	N/A	N/A	N/A	Direct University Funding
			N/A	Vouchers and entitlements
			N/A	Grants
			N/A	Interest subsidy on loans
			N/A	Tax Credits

Blank spaces denote possibilities that have not been proposed or implemented as a policy alternative.

Although beyond the scope of this document, there are several alternatives that governments might consider in the future to attract private capital to provide government with the resources needed to offer public funding of education. One such alternative consists in having government sell the rights to the proceeds from additional investments in education. For example, governments could “sell” part of the taxes received from a particular individual. These possibilities are not considered here.

### ***Principles for Financing Lifelong Learning***

To analyze the various options available for financing lifelong learning, it is good to discuss first what makes a particular option suitable. The following paragraphs describe the requirements that a financial aid program should satisfy. The general requirements for any level of education are studied first, and then the particular requirements of lifelong learning are considered.

### *General Requirements of an Education Financing Scheme*

Options for financing any particular kind of training should take into account certain considerations, the most important being the following: (1) equitable access, (2) impact on the education market, and (3) impact on the labor market.

First, a solution for financing education should aim at making education accessible to anybody who has the capacity and will to undergo additional training. Any other arrangement, such as one that might detract individuals with low-incomes from participating, would create a situation in which only better-off individuals can continue to improve their skills (a situation which is observed today). Such an arrangement would not be equitable for those who want to increase their skills but do not have the resources.

Second, different policies have different impacts on the behavior of the education market. Following the classic economic model, policies for financing education should aim to enhance the choices available to potential students, increase the information available to help them decide on what course to take and what institutions to attend, and increase competition between educational institutions.

Finally, the impact of a particular policy on the labor market should be taken into account, since the performance of the economy is one of the reasons why education is considered important. The impact of different schemes can be studied by analyzing the effect that particular repayment methods have on the decisions individuals make when deciding where to work. For instance, Oosterbeek (1998) discusses the possible effect that income-contingent payments might have when an individual chooses whether to work or not, and what levels of income to seek. He concludes that these arrangements may produce a disincentive for the individual to work. The possible welfare costs that this generates should thus be considered when evaluating the use of income-contingent payments.

### *Lifelong Learning Requirements*

At this point it is relevant to ask why the financing of lifelong learning should be different from that of other kinds of education. Lifelong learning is defined here as the learning that takes place after primary, secondary and tertiary levels, even if the student did not actually go through these levels. The differences between these stages of learning are the foundation for the following principles: first, lifelong learning should be mostly privately financed and pursued; second, some kind of government intervention and financial support is required to target marginalized groups and to take account of externalities; and third, the *actual provision* of lifelong learning should remain in private enterprises. Each of these principles is discussed below.

Young students are constantly being prepared to live in a society with certain shared values and beliefs (what Friedman (1955) calls “education for citizenship”). At basic levels of education, students are given a foundation of basic knowledge that will allow them to join society. On the other hand, grown-up students are learning much more specific skills that build on the foundations they learned earlier (Friedman (1955) refers

to this as “vocational training”). Likewise, Oosterbeek (1998) divides learning into two stages: an initial learning stage where individuals acquire the foundations to continue learning throughout their lives, and a second stage, adult learning, where individuals use their foundations to learn new skills.

According to Friedman, the differences between “education for citizenship” and “vocational training” call for different policies from the state because the former kind has huge externalities, while the latter, in spite of probably having some externalities, has mainly personal benefits. Because of the large personal benefits involved in “vocational training” relative to the externalities, the reasons for government subsidizing and running “vocational training” institutions are small. Education at this level becomes a private matter. Notice that Friedman referred to higher education when he was speaking of “vocational training”, but his analysis is even more valid for post-higher-education learning. Thus, following Friedman’s logic, the individual who is undertaking lifelong learning should finance it mostly by himself.<sup>7</sup>

The previous paragraph does not rule out government funding of lifelong learning. In fact, even though training at advanced ages primarily benefits the individual, government intervention is desirable for equity considerations. There are certain socioeconomic groups, particularly low-income ones, which are systematically marginalized from educational opportunities, and thus require targeted efforts from government. For example, government can target individuals that were marginalized from the traditional levels of education. These individuals can get involved in lifelong learning opportunities as a second chance to improve their skills and earnings capacity. Therefore, a second principle for lifelong learning is that some government funding is required to ensure equal access.<sup>8</sup>

The third principle regarding the financing of lifelong learning relates to the character of government intervention in this market. Because lifelong learning encompasses such a wide variety of areas, including learning outside formal education settings, and because of the different circumstances each individual faces in life, it is very difficult for government to try to administer the provision of lifelong training.<sup>9</sup> Thus, the intervention of the state in lifelong learning is best when it offers regulatory supervision (such as improving the amount and quality of information available regarding different courses and institutions). This operating principle makes the individual responsible for pursuing additional training, and for choosing how and where to do it, while government only supports and informs the individual’s decision.

To conclude, a proposal that seeks to promote lifelong learning should not discriminate against particular kinds of learning, and against particular ages or periods of life for

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<sup>7</sup> An alternative is that employers finance education. However, Becker’s (1993) division between general and specific skills predicts that employers will only be willing to finance what Becker defines as specific training.

<sup>8</sup> This does not rule out the possibility of using other methods to ensure equal access.

<sup>9</sup> As with the distinction between “education for citizenship” and “vocational training”, Friedman offers this argument to reject the direct provision of almost any kind of education by government.

which it should be undertaken. A proposal that favors age groups, or experience groups, will defeat the purpose of enhancing opportunities for additional training throughout a lifetime.

In summary, the following combination of principles should be considered when designing policies for financing lifelong learning:<sup>10</sup>

1. The individual should be responsible for deciding what additional training to pursue and when to continue training.
2. The individual should also carry most of the financial burden.
3. The system should be equitable. Government can use subsidies to attract students from marginalized backgrounds.
4. Government has an important role regulating the provision of education.
5. The system should promote efficiency in the education market.
6. The system should promote efficiency in the labor market.
7. Finally, the system should encourage learning throughout all life's stages.

## II. Policy Options for Financing Lifelong Learning

After enunciating the principles that a system for financing lifelong learning should follow and exploring the framework through which different policies will be analyzed, this section analyzes a wide variety of instruments for financing education and provides a recommendation as to the feasibility of each one in light of the principles discussed in the previous section.

Although they are usually implemented together, two distinct kinds of alternatives are presented: (1) those where the student is expected to pay for at least part of the cost of education, also known as *cost-recovery* schemes, and (2) those where government pays for education. This division corresponds to the fundamental difference in objectives between these alternatives. One focuses on the mechanism used to make students pay for their education and the other focuses on the best way in which government support can be delivered to students to promote lifelong learning. Let's consider the *cost-recovery* schemes first.

### ***Cost-Recovery Alternatives***

Cost-recovery schemes expect that the student pays for at least part of the cost of education. This approach is commonly advocated in economics-of-education literature (see for example Barr (2001), Johnstone (2001a)) on the grounds of efficiency and equity. Cost-recovery is efficient because it leaves the state and educational institutions

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<sup>10</sup> For another set of criteria for evaluating financing mechanisms, see Timmermann's "Financing Mechanisms" in Levin (1983). Timmermann mentions (1) encouraging recurrence, (2) increasing efficiency, (3) encouraging innovations, (4) encouraging marketable skills, (5) encouraging integration, (6) encouraging individual choice and personal development, (7) equality of educational opportunity, (8) social and economic equity, and (9) democratization of education and work.

with more resources to invest in education, thus decreasing the waste generated by under-investment in human capital. Cost-recovery is equitable because it asks those who benefit from education to pay for it. Individuals are the primary beneficiaries of education, enjoying higher average earnings after graduation than they would earn otherwise.<sup>11</sup> On the other hand, cost-recovery strategies always raise concerns regarding the potential harm to access they can cause. The concern is that if cost-recovery schemes are not introduced carefully, they can marginalize low-income students from the possibility of obtaining additional education.

The following section describes four cost-recovery instruments: (1) traditional loans, (2) Human Capital Contracts (HCCs), (3) graduate tax and (4) income-contingent loans. As each instrument is explored, its desirability is studied in light of the considerations introduced in the first section.

### *Traditional Loans*

Traditional “mortgage-type” loans provide the easiest arrangement for financing education. They operate in the same way as other loans, requiring fixed payments for a specific period of time. The amount that students have to pay each period, typically each month, depends on the total amount borrowed, the interest rate, and the repayment period. Because this kind of instrument is widely used and understood, no further details will be given here.<sup>12</sup>

#### Advantages:

The main advantages of traditional mortgage-type loans are its simplicity and the existing knowledge about them. Traditional “mortgage-type” loans are probably the most basic financial instrument used to satisfy cash needs. They are also widely used and understood. Thus, implementing “mortgage-type” loans is probably relatively easy from a policymaker’s point of view. From an investment point of view, the knowledge that investors have of these loans makes them easy to evaluate.

#### Weaknesses:

Unfortunately, “mortgage-type” loans have several weaknesses when used for financing education. First, education is an intangible asset that cannot be used as collateral, thus the risk for the lender increases. The absence of collateral typically results in “mortgage-type” loans being offered only to families who have enough assets to serve as collateral, precisely those who need financial aid the least. Second, the returns to investments in education are wide, with some obtaining high returns while others struggling to maintain an income level high enough to pay the debt. Students cannot know with certainty before investing in their education that their investment will allow them to repay their debt

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<sup>11</sup> The inequity of government subsidization is higher the further away society is from universal participation in education.

<sup>12</sup> For detail on policy options for using these loans to finance education, see Woodhall (1987). For a general overview of “mortgage-type” loans, their characteristics and valuation, see Fabozzi (1996).

comfortably. This problem is exasperated by the inflexibility of the payment schedule of traditional loans.

As an alternative to inflexible payments, a variation of the traditional “mortgage-type” loans, called “graduated” loans, exists. Graduated loans adjust payments to the expected earnings of the student once he or she joins the workforce, so that the relative weight of debt payments as a percentage of total income remains more or less constant. Although these loans are one step further in accommodating students, they adjust to *the average* individual, but do not solve the particular needs of particular students. Thus, they still fail to overcome the criticism ascribed to traditional “mortgage-type” loans.

The poor collection rate on traditional loans, not surprisingly, is a result of the absence of collateral and the risk the student faces. The collection of traditional student loans has been done by different entities: the state, private banks and universities. The track record of collection of the state and universities has not been satisfactory (see Ziderman (1995)). For banks, on the other hand, pursuing defaulters on student loans is expensive relative to the total amount of loans. As a result, the cost-recovery on traditional loans has been dismal (not that other alternatives are much better). Possible ways to improve results, though not perfect, include government collection through other pre-existing collection agencies and government-backed loans.

### *Human Capital Contracts*

Human Capital Contracts have been proposed as a viable alternative for financing education in recent years. Originally proposed as a financial alternative for education by Milton Friedman (1945 and 1955), the idea behind Human Capital Contracts provided the basis for the graduate tax and for income-contingent loans.<sup>13</sup> During the 1960s and 1970s these two variations became more popular, and Human Capital Contracts were not considered again until the early 1990s as a viable option.

The development of financial markets during the last two decades of the twentieth century created favorable conditions for private initiatives to invest in Human Capital. Among the pioneers in the trend are The Pullman Group, which is well known for issuing the “Bowie Bonds”, and more recently, MyRichUncle, a company that started financing students through Human Capital Contracts during 2001.

A Human Capital Contract (HCC) is a contract in which a student commits part of his future earnings for a fixed period of time in exchange for capital for financing education. The main parameters required to design a Human Capital Contracts are the percentage of income and the repayment period. The instrument works best when market forces determine the parameters of the contract.

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<sup>13</sup> The term “Human Capital Contract” comes, to the author’s knowledge, from Roy Chapman. Mr. Chapman launched a proposal to implement Human Capital Contracts in the mid 1990s, but because he believes that the laws in the United States still do not protect investors who invest in Human Capital Contracts, he did not implement the project. See “Colsobs” in *Forbes*, November 4<sup>th</sup>, 1996.

Advantages:

HCCs have at least two desirable characteristics that make them superior to “mortgage-type” loans for financing education: (1) they decrease the risk of the investment to the student, (2) they are equitable, and (3) they can offer a measure of the expected value of education, becoming a source of information for students and regulating authorities.<sup>14</sup>

HCCs decrease the risk of the investment for students by adjusting the payments they would have to make according to the amount they earn after completing their education. If a student’s investment in education does not result in high earnings afterwards, the required payments for education financing are small. Conversely, if a student is able to earn high incomes after completing education, payments are much higher. On average, those students who can pay because of the high earnings they obtain as a result of their education cover the cost not covered by those who do not obtain high earnings. Further, HCCs adjust favorably as a student’s income decreases, avoiding financial distress for the student and decreasing the probability of default.

Because each student ends up paying according to his own capacity to pay, Human Capital Contracts are equitable from a lifelong perspective. Oosterbeek (1998) describes this characteristic (though he is referring to income-contingent loans), as promoting “dynamic” equity. An arrangement satisfies a concept of dynamic equity if the amount of aid given to different students depends on their capacity to pay during their lifetime. It is contrasted by the concept of static equity, where the amount that an individual has to pay is determined by his earnings capacity at one point in time. An example of the use of static equity principles can be seen in traditional education financing schemes, where the capacity of an individual to pay upon starting his or her education is the relevant factor for deciding how much aid he or she should receive..

Finally, in a system where the percentage of income that students commit is freely set by a market, the percentage of income required by investors reveals the expected value of earnings for individuals who complete their studies at particular institutions and in particular fields of study. This information increases the competition between schools as their cost relative to future benefits becomes transparent. Under a system where HCCs are functioning, students have an incentive to go to the school where they commit the lowest percentage of income, not to the cheapest place. As a result, HCCs will presumably apply pressure on educational institutions to improve the value of the cost/benefit relation offered to students.

Weaknesses and Obstacles to Implementation:

Human Capital Contracts have several implementation limitations. The most relevant are (1) the capacity to determine information accurately from the individual, (2) the

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<sup>14</sup> As will be discussed below, some of these advantages are not exclusive of HCCs, but are a common theme for income -contingent repayment schemes.

phenomenon of adverse selection and (3) the negative effect they can have in the labor market.

The capacity of the investor to determine a student's income and the capacity of the investor to collect payments from the student are extremely relevant for the success of HCCs in a country. A student's income can be estimated if there is a well-developed tax-collection agency to which citizens report accurate income information or if a social insurance or pension fund system exists that uses income information to determine benefits for individuals. In particular, when a significant amount of graduates end up working for government, the problem of determining income is greatly reduced.<sup>15</sup> Still, students have an incentive to hide their income in order to decrease their payments, and they are likely to be successful to some extent.

To aid investors, the tax-collection agency can collect payments for investors. Where a developed tax-collection system already exists, the marginal cost of collecting payments on Human Capital Contracts should presumably be low. Given the Australian experience with income-contingent loans (see Chapman (1997)), which requires the same operations from tax-collection agencies, costs can be around 1% of the amount collected. This arrangement, which I call *Institutional Human Capital Contracts* (See Palacios (2001)), would operate in much the same way that private pension funds collect money in countries such as Chile, with the difference being that the state would deposit payments in investors' accounts, rather than in individuals' accounts.

The next issue related to determining a student's income and collecting payments from students has to do with the proportion of graduates who leave the country. Presumably, the feasibility of determining income and collecting payments decreases when students leave the country. To address this problem, certain conditions can be placed on the contract in case emigration takes place, such as demanding an immediate payment.<sup>16</sup> The best alternative for facing this problem in the long run is the establishment of multinational treaties that allow foreign countries to collect payments from students who emigrate. Barr (2001) even suggests that entities like the World Bank could aid in the creation and operation of such a system. A system that solves the problem of collecting payments from students who emigrate would allow students to benefit from higher foreign income and would benefit the countries where the student engaged in the HCCs by returning part of the extra value derived from the student working abroad.

The second important obstacle to implementing HCCs is adverse selection. Adverse selection occurs when investors are unable to discriminate between future high earners and low earners.<sup>17</sup> If the investor is unable to discriminate, future high earners will feel that a HCC is very expensive, and future low-earners will see it as cheap. As a result, students who see themselves with high future earnings will not join the system and

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<sup>15</sup> For example, Colclough (1990) states that 65% of Botswana's graduates work for government.

<sup>16</sup> Several loan programs in fact do this. For example, Colombia's Colfuturo and Venezuela's FondoAyachucho loans require such conditions from students.

<sup>17</sup> This occurs if there is asymmetric information. The process explained here closely resembles Akerlof's famous exposition (1970) in "The market for the Lemons".

students who expect to have low future earnings will eagerly join. To compensate for the low payments that low-earning individuals would make to HCCs, investors raise the percentage of income they ask from students, which further worsens the problem. Eventually, the market for HCCs breaks down and its benefits become unavailable for everyone.

There are several measures that can be taken to avoid adverse selection. One of them is to offer different rates to different individuals. Assuming that investors *can* discriminate between future high earners and low earners, they can offer different rates to them. As a result, both future high earners and low earners perceive that the amount that they have to commit of their future earnings has a fair value and are willing to join the system. This is analogous to what insurance companies do to discriminate between high-risk and low-risk individuals. By offering different premiums to different individuals, both high-risk and low-risk ones feel that the deal they are being offered is fair and take an insurance policy. If the premium was the same for everybody, low-risk individuals would not join, increasing overall risk to the company.

The founders of the only company that was offering HCCs when this document was being prepared, MyRichUncle, state that through their proprietary valuation model they are able to discriminate between potential high-earners and low-earners and in doing so they address the problem of adverse selection. As more students are financed through HCCs, more information will be available that will allow investors to discriminate between different kinds of students. Thus the possibility of adverse selection decreases. Other solutions for avoiding adverse selection are discussed in the next sections, which study graduate taxes and income-contingent loans.

The third argument that has been brought forward against instruments that take away a percentage of income from graduates is the disincentive it produces for working. Because individuals perceive a lower income for whatever job they accept, they have a lower incentive to search high paying jobs and a lower overall incentive to work. The macroeconomic consequence is a lower output and growth, since human capital would not be placed at its best use. The question here is the magnitude of social loss from this disincentive to work and the magnitude of the social gain of reducing risk for students. The answer to this question can only be answered with additional research.

### *Graduate Tax*

After the initial proposal of HCCs, one of the variations proposed during the 1960s and during the 1980s was the concept of the graduate tax. A graduate tax would “tax” each graduate for having attended college. Thus, each student would end up paying a percentage of their income throughout their productive life. Although the idea of a graduate tax is based on the same principles on which HCCs are based, there are some important differences illustrated in Table 2.

**Table 2: Contrast Between HCCs and Graduate Tax**

<b>Characteristic</b>	<b>Graduate Tax</b>	<b>Human Capital Contract</b>
<b>Percentage of income determined by</b>	Government	Investors. Presumably different for each student.
<b>Students join</b>	Involuntarily	Voluntarily
<b>Term of the contract</b>	Whole productive life	Fixed period of time

Advantages:

The graduate tax shares with HCCs the advantages of (1) lowering the risk that students face in their lifelong earnings, (2) lowering risk of defaulting on payments due to financial distress, and (3) the satisfaction of dynamic equity.

The graduate tax is also very simple. Individuals just need a code to show that they are graduates and the tax-collection authorities use it during the whole life of the individual to retain the corresponding tax. Unlike the operations needed to determine if a student has repaid a loan entirely or if their repayment period under a HCC has concluded, the graduate tax is always collected.

A third advantage is the relationship that exists between the life of the investment in education and the payments that the individual has to make after the financing of that investment. In theory, the best financial scheme will equate the payments made for financing an investment with the productive life of the investment. In contrast, very long repayment periods can produce negative consequences such as the perception of servitude or unfairness for having to make payments for such long periods. Further, most developing countries do not have developed financial markets where this kind of long-term obligation can be established.

The advantage of being able to tax individuals over their whole productive life decreases in importance, or might actually become a disadvantage, if the value of the additional knowledge that the individual is acquiring does not last a lifetime, a characteristic of skills in this age. Since one of the principles behind the need for lifelong learning is the fast depreciation of new skills, a graduate tax imposed on the individual for a determined period of time, rather than a lifetime, would avoid the problem, though it would make the instrument more complicated.

Finally, because a graduate tax would be imposed on all graduates, this kind of financing would suffer less adverse selection than HCCs. In contrast with HCCs, where students who see in themselves a high-income potential might choose to not finance their education using that method, potentially high-income earners do not have a choice but to pay the graduate tax. This guarantees that the amounts collected through the graduate tax do resemble the average income of graduates, and not just the average income of the lowest-income earners who joined the system. However, in spite of the graduate tax being mandatory, adverse selection will not be eliminated completely. This will be explained in the following section.

Weaknesses and Obstacles to Implementation:

A graduate tax also shares some of the disadvantages of HCCs. For the graduate tax to work, a state-collection agency has to have the ability to determine graduates' incomes and to collect the tax from them. In the absence of a state-collection agency, a national insurance system, or a social security system can aid in determining income. However, without any of these, the amount that can be recovered might be very low.

A graduate tax cannot be levied when the individual emigrates. In this respect, a graduate tax behaves even worse than a HCC, since in the case of the latter an investor theoretically still has a claim on a percentage of an individual's income regardless of the particular place where the individual is residing. This is not true in the case of a tax.<sup>18</sup> The tax would worsen the situation by giving an incentive to those who have higher marginal taxes, the highly skilled, to emigrate, creating a brain drain. A possible solution is an agreement between nations to levy or withhold the amount of the tax and to pay it to the country of origin. This would enable the individual to enjoy the benefits of higher salaries abroad and would return part of that value to the country of origin.

A third problem with the graduate tax is the adverse selection that it generates among individuals with different levels of ability. In particular, a graduate tax taxes all earnings equally, without discriminating between earnings due to additional education and those due to other factors, such as ability or occupation industry. As a result, the graduate tax creates a disincentive to pursue additional training in those individuals who would have obtained high earnings without education. The only way to avoid this is by differentiating among students to tax only the returns obtained because of the additional education. In essence that is what investors do in HCCs when they offer different students different conditions.

A fourth drawback of the graduate tax is its inability to create immediate resources for funding education. While other alternatives might be attractive enough such that private capital might be willing to invest in education from the beginning, the graduate tax does not involve a private initiative. One alternative for receiving funds immediately would require that the state "sell" part of its future tax proceeds. Whereas this alternative is financially possible, private investors will demand a guarantee against a legal change that substantially changes the way the graduate tax operates. Another possible alternative for obtaining immediate funding is to impose the graduate tax upon all existing graduates, a measure that changes the rules of the game for those who already attended school. Such an alternative, however, raises equity concerns and would face huge political opposition.

Finally, the percentage of income that will represent the graduate tax will be the result of a political process, rather than something that reflects the value of education. To start, in order to accurately reflect the expected value of education, the tax would have to be different for individuals attending different schools and pursuing different careers. It would also have to discriminate somehow for other factors, particularly ability, to be a real measure of the value. Most probably the tax will be the same for all, regardless of the

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<sup>18</sup> Except if that particular country, like the United States, taxes its citizens for the income they earn abroad.

cost of attending school and the benefits from pursuing a particular career in a particular school. In doing so the graduate tax loses one of the most desirable characteristics of HCCs: the potential to convey information to the market regarding the value of education. Therefore, the potential pressure on educational institutions created by information regarding the expected value of education from particular institutions and careers would not exist with the graduate tax.

### *Income-Contingent Loans*

The last income-contingent repayment scheme that is discussed here is the income-contingent loan (ICL). An ICL collects a percentage of income from a graduate *until the value of the loan has been repaid or until a maximum repayment period has been reached*. Income-contingent loans have been the most publicized “new instrument” for financing education and there has been a growing bibliography that supports them. As a result of this, several countries have implemented income-contingent repayment schemes.

The main parameters of ICLs are the interest rate, the repayment period, the percentage of income paid by the student, the collection mechanism, and the conditions of termination of a student obligation.

The conditions of termination of a student’s obligation are of particular importance in ICLs because they determine who fills the gap left by a student who does not earn enough to repay the loan and interest. Traditionally two answers have been given: other students, and government. In the former case, students are grouped in cohorts and are expected to repay until the cohort has completely repaid the loan, even if that entails some students paying *more* than 100% of the value of the loan. The excess that some students pay is used to cover for the losses generated by low-income-earners. When government covers the loss from incomplete payments, students are simply expected to repay 100% of the loan. I show in “Human Capital Contracts and Human Capital Options” (See Palacios (2001)) that there is a third alternative for covering the unmet payments that consists in recognizing the low-income protection offered by income-contingent loans as a financial option. If this alternative is followed, each student would be required to pay a percentage above the total value of the loan to “pay” for the option. The extra payment each student makes should then suffice to cover the expenses not paid by others.

As discussed for Human Capital Contracts, income-contingent loans can be collected by government to make use of existing institutions that estimate individuals’ incomes and collect taxes based on it. Barr (2001) has argued in favor of systems in which the tax-collection agency, or the national insurance contribution system collects payments. He argues that the marginal cost for the state is relatively low given the machinery it already has in place. Chapman’s findings (1997) regarding the collection cost for the Australian government support this position. This proposal can be extended to include independent authorities. Johnstone (2001b) has argued against the applicability of such an arrangement in other countries where collecting payments through the tax machinery might hamper the disposition of citizens to declare and pay their taxes, or where tax-collection agencies are not capable of collecting payments.

Advantages:

Income-contingent loans (ICLs), like HCCs and the graduate tax, decrease the risk for the student in terms of their earnings-net-of-education-payments. Also, like HCCs and the graduate tax, ICLs eliminate default risk due to financial distress. Thus, they retain the most important advantage of income-contingent repayment schemes.

ICLs also satisfy a concept of fairness based on dynamic equity, since students end up paying less than the value of the loan only if they end up with low incomes during the repayment period. Dynamic equity is not perfect, since once the value of the loan has been repaid, students who enjoy high incomes during the repayment period end up much better off than the rest. However, from a cost-recovery perspective, tuition cost is forgiven only for students with low lifelong incomes.

Another advantage ICLs have is the lack of a strong adverse selection problem. Students who see in themselves high future incomes will not have an unlimited liability and will not have a disincentive to join. However, there will be some adverse selection as long as students have to pay a “premium” for protection against low-income. Still, a reduction in adverse selection is very important for the proper functioning of ICLs.

Also related to the fact that payments are capped, ICLs do not create such a high incentive to hide income. Hiding income only pays off for those with such low incomes that they see the possibility of not repaying the loan entirely.<sup>19</sup> Thus, an ICL system might require less control on the amounts that students are reporting as their incomes, eventually reducing administration costs. For instance, as Johnstone (1972) proposed, a scheme where fixed payments are expected from all *except* from those who prove low income would shift attention from focusing on income generated by all students to income generated by some students (those who cannot complete their payment). This is the way Chile’s University credit (“Credito Universitario”) works. Students pay the maximum of 5% of their income and a fixed amount (see Camhi and Latuf, 2000).

To conclude, ICLs only create a disincentive to work for those who have low-incomes. High-income earners will repay their debt completely, and thus do not perceive a difference between different jobs with different wages. This contrasts with the effect of HCCs and the graduate tax, where the disincentive exists for any salary range.

Weaknesses and Obstacles to Implementation:

ICLs share with HCCs and the graduate tax some common weaknesses and obstacles to implementation. They require the measurement of income, are subject to some adverse selection and distort the labor market, though to a *lesser* degree. By far their greatest disadvantage, when contrasted with HCCs, is that they do not reflect purely expectations

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<sup>19</sup> This “disincentive” to hide income decreases if the interest rate on the loan is subsidized. In that case, the longer that an individual takes to repay the loan, the higher the value of the subsidy received.

on the value of education. Thus, they do not promote competition between institutions in the way that HCCs do.

### ***Conclusion Cost-Recovery Alternatives***

Traditional “mortgage-type” loans can be a simple solution for financing education, but do not seem to be effective. On the positive side, they can be attractive to private capital (at a considerable discount, of course). However, they do not seem to be an effective cost-recovery scheme and they would not be easily available to those students who really need it. Finally, they might not be attractive for students because they do not adjust to their capacity to pay.

Human Capital Contracts represent an alternative that addresses the most important concerns regarding traditional “mortgage-type” loans. HCCs decrease risk for the student, compensate investors for risk by offering upside potential, and offer information to the market regarding information on the expected value of education. As described here they are funded through private capital, and can be made accessible to students based on factors other than family wealth. In spite of these positive features, HCCs require certain conditions to be implemented, in particular a reliable way of determining an individual’s income. HCCs may also create a disincentive to work. Further, their existence depends on the capacity of investors to avoid adverse selection.

The graduate tax, like HCCs, also addresses some of the problems of traditional loans. It can be universally applied and students will not have the burden of an inflexible debt. However, there are other features that make them less attractive than HCCs. First, the percentage of income required as a tax is likely to be determined by political process, rather than by the expectations of the value of education. This destroys the possibility of using the graduate tax as an instrument that conveys information to the market regarding the value of education. Second, it is not likely that it can raise private funds. Finally, implementing graduate taxation also requires the measurement of an individual’s income, and an effective tax-collection agency; otherwise, only particular segments of the population would end up paying it.

Finally, income-contingent loans decrease risk for the student, have attracted private capital in the past, and do not have the negative incentives present in Human Capital Contracts and the graduate tax. Their only particular disadvantage, when contrasted against Human Capital Contracts, is that they do not offer information to the market regarding the expected value of education.

### ***Subsidization Alternatives***

Having completed an overview of the most relevant cost-recovery mechanisms, this section turns to subsidization alternatives. These are the alternatives for financing education that are used to implement government subsidization of education. These schemes are concerned with the mechanisms available to policymakers to provide aid for education. The main methods considered here are: (1) public funding of educational

institutions and (2) vouchers and voucher-like instruments. As is the case with cost-recovery schemes, the methods for subsidizing education are usually combined.

The following discussion focuses on how these instruments operate and the main arguments in favor of and against them. The following discussion does not answer the question *how can the state finance these subsidies?* It is precisely because most governments do not have room for additional spending that cost-recovery schemes have been increasing in popularity. However, as discussed in the first section, government can improve equity in the education market using a combination of cost-recovery and subsidies, making the following discussion relevant for policymakers.

### *Public Funding of Educational Institutions*

Under this arrangement government owns and funds educational institutions. Transfers are negotiated directly between government and institutions to cover educational expenses. Although usually the educational institutions themselves are public institutions, this is not always the case. For the foreseeable future, educational institutions are likely to continue receiving direct funds from the state in the same way that they have received funds in the past. However, it is expected that the proportion of funds received as a share of total income will decrease as governments seek other alternatives for funding education.

Since public funding of higher educational institutions is in widespread use today, it is usually not considered an option for solving the problem of funding education. Rather, it is seen as the status quo that can be improved. The main problems usually associated with the direct public funding of higher-education institutions are (1) the lack of responsiveness of institutions to the needs of students and labor markets and (2) the inequity of public financing of a good that benefits mostly its user. Presumably, the same results can be expected when learning providers are state-funded.

The lack of responsiveness of institutions to the needs of students and labor markets are the result of the existing incentives. The primary constituency of school administrators is not the student body, or the labor market, but the agencies in government responsible for giving schools the funds to operate. Naturally, school administrators try to satisfy public agencies' needs, rather than those of students. The second problem, the inequity of financing public schools arises from the fact that public funds are used to fund individuals who then appropriate the benefits through higher earnings. Thus, funding higher-education institutions translates into a transfer from the taxpayer to relatively high-income earners.

For lifelong learning in particular, there are two additional arguments against public provision of education. First, because there is a wide and complex variety of fields for training, the effort that centralized public agencies would have to make to align services offered with market demand is far more complicated than in higher-education. Second, embracing lifelong learning requires accepting informal education mechanisms, such as

on-the-job training, which are hard to model in the context of a public education institution.

As a consequence, even though public funding of higher and other noncompulsory education will continue for a time, a complete solution for financing lifelong learning does not lie in public funding. The attention has gradually shifted towards the alternatives explored below, where government gives funds directly to students.<sup>20</sup>

## *Vouchers*

Vouchers have been discussed as an alternative to government running educational institutions. The basic idea behind a voucher is to give the resources to students so that they can go and enroll in the educational institution of their choice. This is the essence of demand-side financing.

The main policy considerations when designing voucher programs are:<sup>21</sup>

- **Voucher amount:** How much will be given to each student? Will it depend on the school the individual attends or on the field of study pursued? Will it be proportional to tax payments? To training cost? To students who save? To income? Other variables?
- **Student spending limit:** Is the voucher supposed to cover the whole cost of education, or can the student add to the voucher value to pay for tuition? Can the voucher be used for other costs, such as transportation?
- **Voucher target:** Will the voucher be given to everybody? Only students from particular income backgrounds? To particular schools?
- **Voucher use:** For what kind of education are vouchers going to be used? Basic education? General skills training?

The answers to the previous questions are very extensive and there are several examples of voucher-like instruments that have been implemented or proposed in the past. Some examples relevant for lifelong learning are entitlements, Learning and Savings Accounts, and tax credits.

Entitlements are, as proposed by Levin (1983), a combination of vouchers and loans to finance a wide variety of types of learning.<sup>22</sup> Learning and Savings Accounts try to encourage savings while at the same time providing vouchers to individuals interested in pursuing additional education. Tax credits also encourage investments in education by

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<sup>20</sup> Because public funding of higher-education institutions is likely to continue in the foreseeable future, some authors have offered alternatives to make their working more efficient. For instance, see Ziderman (1995) for a discussion on how public allocation of funds can be improved.

<sup>21</sup> For an exposition of different types of vouchers see Blaug (1984).

<sup>22</sup> Levin's system is cited in the literature as the most comprehensive for financing lifelong learning. See Oosterbeek (1998).

reducing the amount of taxes that an individual has to pay if he or she invests in education.<sup>23</sup>

#### Advantages:

There are two main reasons why economists and others advocate vouchers: vouchers (1) are a subsidy that increase consumer sovereignty, thereby increasing efficiency in the education market, and (2) vouchers can be used to target particular social groups, thus fostering equity in society.

Vouchers give their holder the option to attend any educational institution as long as it is “approved” by authorities. By choosing, individuals reveal their preferences regarding what they want to study, and what particular provider they like. By choosing some institutions over others, and some courses over others, individuals spur competition among educational institutions and give them an incentive to offer the courses that individuals demand. The result is a more efficient educational market.

In addition to the increased efficiency in the educational market, governments can use vouchers to target certain social groups. In particular, targeting vouchers to social groups that are systematically misinformed regarding the value of education can help compensate for the particular circumstances that lead them to systematically under-invest in human capital.

#### Weaknesses and Obstacles to Implementation:

As with any source of public aid, the administration of a voucher program requires controls in order to prevent their misuse. In turn, these controls increase the cost of the program and make the system more complex from the point of view of the user. The recent Individual Learning Accounts program in the United Kingdom testifies to the results of a poorly controlled voucher system.

An obstacle to implementation is the way public opinion and legal institutions view the transfer of funds to private entities. In the United States in particular, a major obstacle to the introduction of voucher-like systems is the perception that public funds are being used to sponsor religious activities. In spite of this being principally a problem for basic education, it is conceivable that the issue could be raised when vouchers are used to train in vocational institutions run by particular groups, such as religious organizations. This, however, is not an important issue in developing countries.

#### Conclusion:

Vouchers enhance efficiency in the education market and can be used to promote equitable access to education, making them a preferable alternative to the direct transfer of public funds to educational institutions. However, their design can be quite complex

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<sup>23</sup> See Olsen, Darcy and Brouillette, Mathew. “Another Path to School Choice” *Washington Times*, December 13, 2000.

and entails an important political effort, and their execution requires control systems to ensure that public funds are being used in the way they were intended to be used.

### ***Combining Alternatives to Succeed***

No single alternative among the ones discussed above addresses all the problems of financing education, and lifelong learning in particular. In general, cost-recovery schemes try to find additional immediate capital to finance education for everyone but do not address the problem of equitable access. On the other hand, voucher-like instruments are targeted towards disadvantaged groups but do not solve the problem of funding. It is quite clear that the best arrangement is a combination of cost-recovery schemes and voucher-like instruments.

In fact all financing schemes devised so far are a combination of the two. From the simple subsidized “mortgage-type” loan, where the loan is the cost-recovery scheme, and the subsidy a particular kind of voucher<sup>24</sup>, to complex systems like the Chilean one, all alternatives combine cost-recovery with subsidy. Even Levin’s original entitlement proposal (1983) was a combination of grants and loans. But, is there an optimal combination?

From the discussion of cost-recovery schemes, it seems that a combination of income-contingent loans *and* a small dose of Human Capital Contracts can offer the best of all worlds.<sup>25</sup> By combining ICLs and HCCs with a voucher-like system, all the basic conditions defined in the first section are met: individuals are responsible for their training, carry an important part of the financial burden but do not have to pay for it up-front; government provides resources through a system that promotes efficiency in the education market; the instrument has adverse effects on the labor market only for low-income earners; finally, if the voucher-like system is available throughout an individual’s life, it promotes spreading learning over a lifetime.

## **III. Conclusions**

We now conclude with a short guide on key elements that governments and multilateral institutions like the World Bank should consider when embarking on the design and implementation of lifelong learning policies.

### ***The Preferred Model***

The conclusion from the first part of this paper is that the model that best addresses the financing of lifelong learning is a voucher program in combination with income-contingent loans and Human Capital Contracts. Such a combination addresses equity

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<sup>24</sup> This particular voucher is proportional to the amount of the loan and is offered to whoever takes the subsidized loan.

<sup>25</sup> In fact, such a system could be devised through the introduction of Human Capital Options. Combinations of options and equity arrangements create income-contingent loans. See Palacios (2001).

concerns, both from a static and dynamic point of view, and promotes efficiency in the labor and education markets. In line with the objectives of lifelong learning, entitlements should be available for a wide variety of skills, should promote saving, and should promote spreading learning throughout the productive life of the individual.

### ***The Role for Governments***

The way that governments face the problem of financing lifelong learning will result in consequences that affect an important part of the population. Following is an important set of challenges that governments will face in order to create a suitable system for financing lifelong learning:

- **Shifting towards cost-recovery policies:** A sustainable, efficient and equitable system for financing lifelong learning requires a cost-recovery mechanism. Implementing such a mechanism can be a challenge given the tradition of free state-funded education.
- **Focusing on collection of payments:** The success of cost-recovery policies will depend on the success in collecting payments from former students. The participation of tax-collection agencies or social security systems is a possibility that should be considered.
- **Involving private capital:** A substantial increase in the amount of resources available for financing education, particularly for lifelong learning, is not feasible without the intervention of the private sector. Attracting private capital will probably require commitment to honor agreements, guarantees from governments, aid in collecting payments, and decisions by private parties on the particular characteristics of each instrument offered. This can be done with the help of multilateral organizations, such as IFC has done with loan programs.
- **Designing voucher-like systems:** A complete scheme for financing lifelong learning requires subsidies from government. Following the above discussion, these should ideally be voucher-like systems. Government needs to make a political decision to support these systems. Particularly for financing lifelong learning, a decision has to be made to make vouchers available to the population for different types of training and for the period in life that the individual chooses to attain more knowledge. Vouchers can be made available at any given moment, or after the individual has saved for learning. Finally, vouchers should also be targeted to particular marginalized socioeconomic groups.
- **Providing Information:** An important feature that contributes to making the education market more efficient is the compiling and distribution of information regarding the quality of educational institutions, costs of education and the demand for particular skills.

Notice that once the decision to proceed with cost-recovery schemes is made, the subsequent steps that government needs to take in order to ensure the success of a cost-recovery scheme are aligned with its interests in other areas. For example, the

development of an effective tax-collection agency is key to the capacity of the state to create change. The measures needed to attract private capital for funding lifelong learning are the same as those required to attract private capital to invest in the country in the long run: stable laws, facilitated by a developed financial system.

### ***The Role of the World Bank***

As the requirements for financing lifelong learning increase, the need for funding will increase. How should multilateral institutions like the World Bank react to this? It is important to distinguish between two needs that governments will have: (1) help on how to finance the cost-recovery schemes and (2) help on how to finance the voucher programs.

The role of the World Bank on how to finance cost-recovery schemes should be limited, since the ideal situation is that in which private capital is involved. On the other hand, the World Bank can have an important role to play on financing voucher schemes, since these entail public expenditures (and presumably, public benefits from the investment).

But since most schemes will be a combination of cost-recovery instruments and vouchers, the bank will probably be involved in the overall design of the project. Here are some points that should be taken into account.

- **Advice:** The World Bank has theoretical and empirical knowledge of what is successful and what is not. This knowledge should be used to provide advice to countries facing the challenge of financing lifelong learning.
- **Institutional Reform:** Institutions are a factor in the success or failure of several of different financial schemes. The bank can aid in the creation of institutional arrangements that aid in the financing of lifelong learning. For example, the World Bank can promote income-contingent repayment schemes by placing emphasis on the ability of the state to collect payments through a tax-collection agency.
- **Attracting of Private Capital:** IFC has identified the role that the private sector can play in financing education as helping alleviate financial constraints, improving equity and enhancing social mobility (see IFC, 2001). Because the involvement of private capital is a key issue in the funding of lifelong learning, the bank can promote arrangements that make the use of private capital possible. Some possible alternatives include risk-sharing arrangements, guarantees from the bank, and the promotion of secondary markets where education-financing instruments can be traded globally.

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