LES CAHIERS DE RECHERCHE EN EDUCATION ET FORMATION

Deferred and Income-Contigent Higher Education Fees

An empirical assessment using Belgian data

V. Vandenberghe[*] *& O. Debande*[**§]

N° 41 ● JUNE 2005 ●

girsef
GROUPE INTERFACULTAIRE DE RECHERCHE SUR LES SYSTEMES D'EDUCATION ET DE FORMATION

CHAIRE UNESCO DE PÉDAGOGIE UNIVERSITAIRE
CPU

L'éducation et la formation constituent des enjeux fondamentaux pour la société contemporaine. Deux équipes de recherche à l'UCL se préoccupent de ces questions : le Groupe interfacultaire de recherche sur les systèmes d'éducation et de formation (GIRSEF) et la Chaire UNESCO de pédagogie universitaire (CPU).

Le GIRSEF est un groupe de recherche pluridisciplinaire fondé en 1998 afin d'étudier les systèmes d'éducation et de formation, réunissant des sociologues, économistes, psychologues et psychopédagogues. L'attention est portée notamment sur l'évaluation des résultats des systèmes éducatifs en termes d'équité et d'efficacité, sur leurs modes de fonctionnement et de régulation, sur les politiques publiques à leur endroit, les logiques des acteurs principaux ou encore sur le fonctionnement local des organisations de formation et l'engagement et la motivation des apprenants. Sur le plan empirique, ses recherches portent essentiellement sur le niveau primaire et secondaire d'enseignement, mais aussi sur l'enseignement supérieur et la formation d'adultes.

La Chaire de Pédagogie Universitaire (CPU) a été créée en mai 2001 et a reçu le label de Chaire UNESCO en septembre 2002. Elle assure également le secrétariat et la coordination du Réseau Européen de Recherche et d'Innovation en Enseignement Supérieur (RERIES), réseau européen des chaires Unesco sur l'Enseignement supérieur. Elle a pour mission de contribuer à la promotion de la qualité de la pédagogie universitaire à l'UCL, en contribuant à la fois à la recherche dans ce domaine et en coordonnant une formation diplômante en pédagogie universitaire (DES en pédagogie universitaire).

Ces équipes se sont associées en 2004 pour proposer les **Cahiers de recherche en Éducation et Formation**, qui font suite aux Cahiers de recherche du Girsef, dont 25 numéros sont parus entre 1999 et 2003 . La série des Cahiers de recherche en Éducation et Formation a pour objectif de diffuser les résultats des travaux menés au sein de la CPU et du GIRSEF auprès d'un large public, tant les chercheurs qui s'intéressent aux questions de l'éducation et de la formation qu'auprès des acteurs et décideurs de ces deux mondes.

La compilation de l'ensemble des onze cahiers parus en 2004 est maintenant disponible dans un volume imprimé qui peut être commandé à partir du site www.i6doc.com, notre partenaire éditorial.

Par ailleurs, chacun des cahiers de la série, depuis le premier numéro, peut être téléchargé gratuitement depuis le site d'I6doc (www.i6doc.com) et depuis les sites du GIRSEF (www.girsef.ucl.ac.be) et de la CPU (www.cpu.psp.ucl.ac.be).

Responsable de la publication : Mariane Frenay

* Corresponding author. Economics Department, IRES, Université Catholique de Louvain, 3 place Montesquieu, B-1348 Belgium email : vandenberghe@ires.ucl.ac.be. Fax : + 32 1° 47 39 45
** European Investment Bank, Luxembourg. email: debandeo@eib.org
§ A similar version of this paper was published in the Economics Department Working Paper, No 2005-03.

Table of content

Abstract	4
Introduction	4
1. Model	8
2. Empirical evaluation of private finance instruments	11
3. The cost of income-contingency	20
4. Conclusion	22
Acknowledgements	23
Bibliography	23

Abstract:

There are many arguments for shifting at least part of the higher educational cost burden from governments (or taxpayers) to individuals, particularly in Europe. But this case largely rests on the capability to offer deferred and income-contingent payments. The two first features are critical to efficiency – students and lenders should not be deterred by excessive risk – and justice – contributions should be tailored to *ex post* ability to pay. Examples of instruments satisfying these criteria are income-contingent loans and human capital contracts. The central aim of this paper is to produce realistic estimates of how graduates' and non-graduates' lifetime income is likely to be affected by the generalisation of these instruments. Using data on Belgian income, we evaluate their effect on the distribution of lifetime net income, using higher income tax as a benchmark. The paper then considers the different ways of financing the cost of income-contingency, with a particular focus on the risk of adverse selection inherent to pooling the cost among graduates. But it shows that investing less on students opting for less profitable programs is a simple way to mitigate its severity.

JEL classification: I28 (Education: Government Policy). H520 (National Government Expenditures and Education).

Key works: Higher Education Finance, loans with income-forgiveness, cost of insurance, risk pooling

Introduction

Human capital is crucial to economic prosperity. Although this idea is fairly old it is currently gaining a lot more of attention among decision-makers. Mass higher education seems justified for several reasons in order to favour economic growth. One of them being the current speed of technological change that makes high-skilled individuals more important than ever.

Why should individuals pay more?

In most European countries, public financing has been considered as the traditional approach for supporting higher education. Even if tuition fees have been introduced in various countries, they only contribute for a small amount in addition to resources provided by governments. The average subsidy rate for higher education[1] in European countries ranges from 76% to 99% (Debande, 2003).

Pressure to reform is partially related to *rising demand* and *increased budgetary pressure.* As stated by Johnstone (2004), higher education demand has never been greater. Reasons for this are manifold: occupational and social higher education degrees presumably convey, and from governments, public benefits it is presumed to bring to the social or economic well being of communities... However, unit or per-student cost of higher education is high. And the total cost is magnified by dramatically increased enrolment

[1] Defined as the share of direct public expenditure in educational institutions and total public subsidies to households and other private entities in total sources of funds for higher education.

pressures. Governments are also besieged with other pressing public needs (rising pension and health care costs…), which seem more politically compelling than the claims of higher education and which, together with higher education, greatly exceed, in almost all countries, the available scarce public revenues. The result is an increasing sense of financial crisis across the EU higher education sector.[2]

The discussion has also to integrate the increased *mobility trends* of students and graduates (Teichler & Jahr, 2001). As foreign EU students are entitled to the same treatment as nationals, countries which are net hosts of EU or foreign students subsidize the net sending countries. This generates free-riding problems, with the resulting potential risk of underinvestment by some governments. Along the same line of reasoning, it could be the case that intra EU fiscal competitions, in a context of greater mobility of graduates, will lead to a reduction of their effective taxation rate, resulting in a reduction of their implicit contribution to higher education finance. There might thus be a need to compensate these forgone tax revenues by more explicit contributions (Bhagwati & Wilson, 1989).

But there are more *philosophical reasons* for increasing individual participation. One of them is the 'benefit' principle: the person who benefits should pay. There is indeed plenty of empirical research to suggest that the private benefits (higher income, lower risk of unemployment...) from education are large (Johnes, 1993), and probably on the rise due to a rising demand for skills cause by skill-biased technological progress (Kremer, 1994). Additional private benefits are derived from better health or personal satisfaction for those gaining higher education qualifications. As a consequence, higher education could not be considered as a pure public good.

Why deferred and income-contingent payments?

The simplest way to increase private contribution is to raise fees. But most economists think this would be both inefficient and inequitable. Consequently they generally favour a system where higher education is free at the point of use and payment is deferred (Barr, 2001 ; Chapman, 1997).

A first argument supporting deferred payment is the idea of unequally distributed *liquidity constraints*. The benefits of higher education materialize only after the costs of being educated are incurred. The latter can be high as they include fees, cost of living plus forgone earnings. Some students can rely on their relatives' wealth. But for all the others, participation becomes difficult unless something is done to provide them with liquitidy.

The case for deferred payments also rests on *ethical grounds*. Private contributions should be function of a student's ability to pay. But students' income is not known, as it primarily depends on their future income or earnings. Consequently, enforcing ability to pay principle (in combination with the benefit principle) requires deferring its implementation at a time when the resulting income of the student will be verifiable. This is precisely what income-contingent education finance is about. Graduates with lower lifetime earnings pay less, or do not pay at all, while those with higher earnings pay more, but still in proportion commensurate to the initial cost of their investment in higher education.

[2] "EU countries spend on average just 1.1% of GDP on higher education, which is on a par with Japan but much less than Canada (2.5%) and the US (2.7%). If Europe were to match the total US figure, it would need to spend an additional 150 billion € each year on higher education. This situation has affected European universities' performance in world-class research, with a lower share of scientific publications, patents and Nobel prizes than in the US. A major difference is that while European higher education continues to rely almost exclusively on (limited) public funds, much stronger and lasting expansion has been possible in competitor countries thanks to a greater diversity of funding sources, with much higher contributions from industry and households" (EU

Income-contingency also echoes *information* and *uncertainty problems* that need to be properly addressed. Students face higher risks in borrowing to finance human capital than – for example – an average individual borrowing to buy a house. As stated by Barr (2001), a person who buys a house knows what he is buying. The house is unlikely to fall down, the real value of the house will generally increase and – most importantly -- if earnings fall, making repayments burdensome, she can sell the house. In other words, the house generally act as collateral for the loan, meaning it can be obtained on good terms from the bank. But someone who has borrowed to acquire human capital and faces lower earnings does not have the option to sell his degree[3]. This increases the exposure to risk and the propensity of private investors to deny access to capital or charge high risk premia. In addition, future students – particularly those from low socio-economic background – are not necessary fully aware of the magnitude of the return on human capital investment. Even well-informed students face risk: though average private rate of return to investment is fairly high, there is considerable variance about that average. Recent socioeconomics changes, like more flexible labour markets and less stable households (divorces, separations, relocations...) might cause larger fluctuations in short-term levels of earnings.

Risk shifting or risk pooling?

Income-contingency is thus necessary and we will see that it can be implemented in different ways. In all cases however, income-contingency operates as an insurance against loss of earnings. And an insurance comes at a cost than need to be shared between the graduates (cost pooling) or transferred to taxpayers (cost shifting).

Cost *pooling* consists of a system where the cost of default, or low contribution due to no-or-low earning spells, is shared among graduates. But the higher cost of providing income-contingency to categories like women or less profitable fields of study could be shifted to the taxpayer via subsidies to individuals (borrowers) or inverstors (lenders)[4]. Students would then benefit from income-contingency without any risk premium or implicit transfers, and private final lenders would enjoy a source of risk-free investment. Howeve this option might lead to public debt classification (ie, student contracts classified as public debt). Total transfer of insurance costs from lenders to the State could also induce a fiscal cost.

Loans and equity-like contracts

As to private deferred payment solutions a distinction should be introduced between loan and equity contracts (Barr, 2001, 2002 ; Greenaway & Haynes, 2003 ; Jacobs, 2002). By definition, a loan contract is a promise to pay back a fixed amount (an instalment), as a stream of interest payment + principal payback. And combined to the idea of income-contingency, in the context of education, the loan contract becomes a student *income-contingent loans* (ICL).

In the case of equity contracts, the arrangement corresponds to the engagement to pay a share of the profits generated, either as a dividend or/and a rise in the value of the shares. Transposed to student funding, it corresponds to the notion of *human capital contract* (HCC) in which students commit part of their future income for a predetermined period of time in exchange for capital (Palacios, 2004).

ICL and HCC are the two instruments we will focussing on in this paper.

[3] Degrees without their holders are no more that printed sheets of papers.

[4] Chapman (2004) explains that the mechanism implemented in Australia from 1989 onwards is essentially a ICL system with cost sharing in the sense that the government covers the cost of non-repayment.

How to design income-contingency?

The idea of income-contingency is central to our argument. But it still needs to be fleshed out in order to be implemented. When should graduates be exonerated from payment and benefit from the insurance mechanism inherent to income-contingency ?

Income-contingency is direct in the case of human capital contracts (HCC), as payment is defined as a percentage of earnings. Any decline in revenues will automatically translate into lower contribution. Things are slightly less obvious with income-contingent loans (ICL), but human capital theory provides adequate guidelines. Private contribution should be proportional to the benefits derived from the kind of human capital acquired at tertiary level; not the one acquired at primary or secondary school. Higher education graduates should pay only if their annual net wage is *above* that of individuals with secondary school attainment.

Human capital contracts (HCC), Income-contingent loans (ICL) vs. income tax (IT)

The central aim this paper is to produce realistic estimates of how large-scale use of private finance instruments is likely to affect graduates, but also non-graduates. Private finances schemes need to be assessed in comparison with traditional income taxation. In technical terms, this means that we are not only interested in simulating the case of ICL and HCC but also the effects on the distribution of lifetime earnings of resorting to *higher income tax* (IT).

Using data on Belgian income and employment, and applying simple econometrics, we compute estimates of payment flows that the three types of policies are likely to generate. More importantly, we evaluate their effect on the population-wide (graduates + non-graduates) distribution of lifetime income.

The main result of the paper is that income-contingency schemes represent an opportunity to raise significant – 5,000 Euros per capita representing 10 to 30% of current public spending -- at a cost for graduates representing at most 1.6 % of their current lifetime net wages. The other result is that these instruments are reasonably *equitable* as payments are indexed on graduates' ability to pay. Although HCC somehow dominates ICL, both instruments display *vertical equity* virtues. They are also more expensive for graduates that finance by income taxation. In the Belgian context, resorting to income taxation leads to regressive transfers from non-graduates to graduates: up to 48 cents of each additional Euro spent on higher education and finance via income taxation is actually paid by non-graduates.

But income-contingency comes at a cost that should be shifted to the tax payer or shared between the graduates. In the first case, both students and investor enjoy the benefit of low installment and risk-free investment, but the taxpayer must pay up to 28 cents for every Euro invested. But a complete transfer of the risk to the taxpayer could lead to public debt classification of students loans and contracts. The alternative is to pool this cost among graduates. Yet, *pooling* could lead to adverse selection (ie, inadequate pooling of high and low risk individuals). Simple computations suggest that payments by Belgian graduates with the rosier prospects (long/university program graduates) are inflated by 13 to 14%. when pooled with graduates who face lower liftetime income. However we show that investing *less* money on potentially less wealthy graduates eliminates this cost. The tentative conclusion is that students attending programs leading to less paid jobs can and even should be asked to pay lower cumulated fees, and consequently borrow less money to finance their human capital.

Section 1 exposes the simple model we use to assess the outcomes of LIF, HCC but also finance by higher IT (our benchmark). Section 2 contains the analysis of Belgian income and employment data. In particular the estimation of the level of contributions that both ICL and HCC are likely to represent, and

how these compared with traditional IT. Section 3 further discusses the different ways of financing the cost of the insurance inherent to income-contingent schemes like ICL and HCC, in particular who to address the danger of adverse selection when resorting to cost pooling. Section 4 concludes.

1. Model

The conclusion of the introductory discussion is that in order to secure additional resources for higher education systems, deferred payment schemes are highly desirable. But the case in favour of these largely rests on the capability to simultaneously secure *income-contingency.* And we have identified income-contingent loans (ICL) as well as human capital contracts (HCC) as suitable candidates. But before moving to empirical analysis and simulation (section 2) we need to develop simple models of our finance schemes (ICL and HCC) aimed at increasing resources for higher education[5]. We also need to model more traditional finance by income taxation (IT) as outcomes of ICL and HCC must be put into perspective with those generated by traditional taxation mechanisms. Modelling should also include present value of income by category of individuals. We indeed intend to use this variable to assess the impact of a each mechanism on vertical/distributive justice.

We shall assume that human capital investment (*INV*) comes in addition to the current level of public funding. It is mandatory for all students[6], takes place at the age of *18* and lasts a predetermined period *D*. Students/individuals start repaying at the age of 24 (grace period of 5 years). For simplicity of exposure we make a similar assumption about finance by income taxation (IT). We envisage the – highly plausible – situation where additional public resources financing a particular cohort's higher education takes the form of public debt issued when individuals are aged 18. Reimbursement of this public debt, via higher income taxes, also starts at age 24 and ends at horizon *D*.[7]

1.1. Present value of income

if $y_{a,j,k}$ represents the level of net income (ie, wage + replacement income) of a representative individual of age *a,* higher education status *j* (ie, graduate or non-graduate), and type *k*, the present value of his lifetime income, evaluated at age 24, is:

$$PVy_{24,j,k} = \Sigma_a \left[y_{a,j,k} \, (1+\tau)^{a-24} / (1+r)^{a-24} \right] \qquad [1]$$

with:

- *a* ranging from 18 to 65;
- τ capturing the general tendency of income to grow, due for example to technological progress ;
- *r* representing the usual discount factor (the preference for the present as supposedly reflected by the return on risk-free long term bonds)

The notion of type of individuals (*k*) directly echoes the idea of a *distribution* of lifetime income; with some types/categories of indiduals with low lifetime net net income and others to categories who are

[5] Some authors like Jacobs (2002) model private finance mechanisms as *substitutes* to public finance. Although very sensitive when it comes to policy-making, this distinction does not fundamentally affect the results of the modelling exercise.

[6] Coverage is 100% in order to ensure insurance cost pooling and redistribution according to ability to pay.

[7] Strictly speaking we should assume than non graduates start paying taxes before the age or 24. However this more realistic modelling option would not fundamentally change our results about what happens when these individuals do not contribute to higher education additional funding.

economically more successfull. Section 2 will expose who we build our types of individuals from our data set.

It is also implicit from equation 1 that the data we will be using are *cross-sectional* and not longitudinal. Transforming these data in lifetime income functions need to be done with some care. As suggested by Jacobs (2002), the main reason why cross-sections differ from time-series is that there is income growth due to total factor productivity gains (technological progress).

Our income data will also consist of *net income*. This choice reflects the supposedly realistic assumption that extra private or public contribution to higher education comes in addition to current levels of taxation.

Finally, is is important to stress that our definition of *net income* encompasses net wages + *remplacement earnings*.

1.2. Finance Instruments

i) Human capital contracts (HCC)

The case of HCC is fairly simple to model. Characterizing this instrument of private finance amounts to finding percentage θ such that present value of lifetime payments by a typical graduate equals the value of the investment;

$$INV(1+r)^5 = \theta \sum_a [y_{a,g,\bullet} (1+\tau)^{a-24}/(1+r)^{a-24})] \qquad [2]$$

with

- a ranging from 24 to 24 +D-5; where D is the duration of the human capital contract (eg, 25 years);
- $y_{a,g,\bullet}$ is the income/age function for a representative graduate *(j=g),* all types k of individuals combined

ii) Income-contingent loans (ICL)

Modelling ICL is slightly more demanding. It basically consists in finding the value of the annual instalment Ω such that:

$$INV(1+r)5 = \Omega \Sigma a [\mu a,g,\bullet /(1+r)a-24)] \qquad [3]$$

with :

- *a* ranging from 24 to 24+D-5; where D is the duration of the ICL;
- $\mu a,g,\bullet \equiv Prob(ya,g,\bullet > \Theta)$ the probability of payment estimated for a representative graduate *(j=g)* of age *a* (all types combined); Θ being the annual net earnings threshold under which no payment is required. It is defined here as the average income of observed among non-graduates, not necessarily of same age as graduates, but with identical labour market experience.

In the simple model exposed above, the key parameter is the probability of payment $\mu_{a,g,\bullet}$. It captures the idea of income-contingency.

iii) Income taxation (IT)

The last instrument to be modelled it IT (public debt issuance financed by deferred higher taxation). The exercise implies finding the percentage of additional taxation η such that :

$$N\,INV\,(1+r)^5 = \eta\,[N \sum_a [T_{a,g,\bullet}\,(1+\tau)^{a-24}\,/(1+r)^{a-24})] + (P-N) \sum_a [T_{a,ng,\bullet}\,(1+\tau)^{a-24}\,/(1+r)^{a-24})]] \qquad [4]$$

where:

- *a* ranging from 24 to 24+*D- 5*; where *D* is the predefined horizon of the public debt;
- *T* is the expected amount of tax paid by the representative individual (graduate and non-graduate);

- N is the number of graduates in a cohort (eg, 24 age-band in our cross sectional data), P is the size of the whole population;

The reader should note that the second term of the right-hand term in equation 4 reflects the contribution of non-graduates (those who do not attend higher education). Equation 4 can be restated, after dividing both sides by N, to become:

$$INV\ (1+r)^5 = \eta\ \left[\Sigma_a\ [T_{a,g,\bullet}\ (1+\tau)^{a-24}\ /(1+r)^{a-24})]\ +\ \alpha\ \Sigma_a\ [T_{a,ng,\bullet}\ (1+\tau)^{a-24}/(1+r)^{a-24})]\right] \quad [5]$$

with

- $\alpha \equiv (P\text{-}N)/N$ *capturing the importance* of the non-graduates in a cohort;
- $\gamma \equiv \eta\ \alpha\ \Sigma_a\ [T_{a,ng,\bullet}\ (1+t)^{a-24}/(1+r)^{a-24})]\ /\ INV\ (1+r)^5$ the rate of subsidisation of higher education costs by individuals who did not attend.[8]

Note finally that, assuming that T is the result of progressive taxation of annual gross income ie, $T=b\ gy+c\ (gy)^2$ with $c>0$, we clearly have that -- for any value of η -- ηT is also progressive.

1.3. Distribution analysis

As already stated, we intend to assess the impact of each of the three types of education finance schemes modelled above on vertical/distributive justice. This means that we need to compute the present value of the lifetime contribution for each instrument (HCC, ICL, IT) and *each relevant type* of individual k.

Algebraically, assessing it means computing:

$$C\_HCC_k = \theta^*\ \Sigma_a\ [y_{a,g,k}\ (1+g)^{a-24}/(1+r)^{a-24})] \quad [6]$$

$$C\_LIF_k = \Omega^*\ \Sigma_a\ [\mu_{a,g,k}\ /(1+r)^{a-24})] \quad [7]$$

$$C\_IT_k = \eta^*\ \Sigma_a\ [T_{a,j,k}/(1+r)^{a-24})] \quad [8]$$

with:

- θ^*, Ω^*, η^*, being the respective solutions to equations 2, 3, 4
- a ranging from 24 to 24+ D - 5;
- $y_{a,g,k}$ in equation 6 being the expected level of net income for a type k graduate ($j=g$);
- $\mu_{a,g,k}$ in equation 7 being the probability that a type k graduate ($j=g$) pays her annual instalment on her loan;
- $T_{a,j,k}$ in equation 8 the expected level of taxation currently paid by a type k individual;

The final stage is fairly immediate as it involves computing present values of contributions for each type *relative* to the present value of their lifetime gross income ($PVgy$ computed by type k, see equation 1).

$$\Pi\_HCC_k = C\_HCC_k / PVgy_k \quad [9]$$

$$\Pi\_LIF_k = C\_LIF_k / PVgy_k \quad [10]$$

$$\Pi\_IT_k = C\_IT_k / PVgy_k \quad [11]$$

[8] Often referred in the literature as the antiredistributive nature of public financing of higher education.

2. Empirical evaluation of private finance instruments

In the models above, the key variables are the net income profiles (y), taxation profiles (T).as well as probability of paying loan instalments (μ). We could immediately have move to the simulation exercise using somehow arbitrary values for each of these parameters. But the result would be trivial and bring little substance to the paper. So we opt for the more appealing approach that consists of estimating the value of the profiles or parameters using real information on wages, employment rates and tax payments of both higher education graduates and non-graduates.

2.1. Data

Our data come from a 2002 Belgian survey: the Panel Study on Belgian Households (PSBH). For a sample of 4,068 individuals it provides data on annual net and gross earnings (and thus amount of income tax), participation to labour market, working hours and personal characteristics (age, gender and – most importantly – education).. This data set is useful to evaluate the relationship between higher education (short or long[9] programs) and income or taxation at different stages of individuals' career, relative to less educated people. In the context of ICL, these data can be use to estimate the risk that net annual income fall below a certain threshold and, consequently, exonerate individuals from paying their annual instalment.

2.2. From wages to income

PSBH provides information about wages. To get an idea of the level of net (y) and gross income (gy) we add replacement earnings (rep) to net (w) or gross wages (gw). The former corrrespond essentially to unemployment benefits. We do not observe them directly. Hence we resort to two simplifying assumptions to compute them. First, following Van der Linden and Dor (2001), we consider a replacement ratio of 34%. This value adequately reflects the situation of cohabitants and the fact that benefits are decreasing over time for some categories of persons. Second, we assume that unemployment benefits are sensitive to past wages, since they are indexed on former wages within a certain interval. According to Office National de l'Emploi (2003), the proportion of unemployed persons for which the benefit is proportionally linked to former wages is 29%.

Hence, for each of the 4,068 individual in the data set the level of income is equal to :

$$y_i = m_i w_i + (1-m_i/12)\, rep \qquad [12a]$$

$$gy_i = m_i gw_i + (1-m_i/12)\, rep \qquad [12b]$$

with

- $rep = a\,W + b\,AW$
- $a = (0.29)\ 0.34 = 0.0986$
- $b = (1 - 0.29)\ 0.34 = 0.2414$
- m_i= *the* number of months in 2002 during which individual *i* had a remunerated job;
- *W* the average net wage among working indviduals with same age, gender and degree as individual *i*;
- *AW* the economy-wide average net wage of working individuals;

2.3. Estimating income and taxation profiles

Estimates presented in section 3 are not directly based on individual income or taxation data. The amount of missing values about net and (even more

[9] Typically organised within universities

importantly) gross wages would represent a significant loss of information. Our strategy is inferential. We use PSBH individual data to estimating income and taxation by age *profiles*.

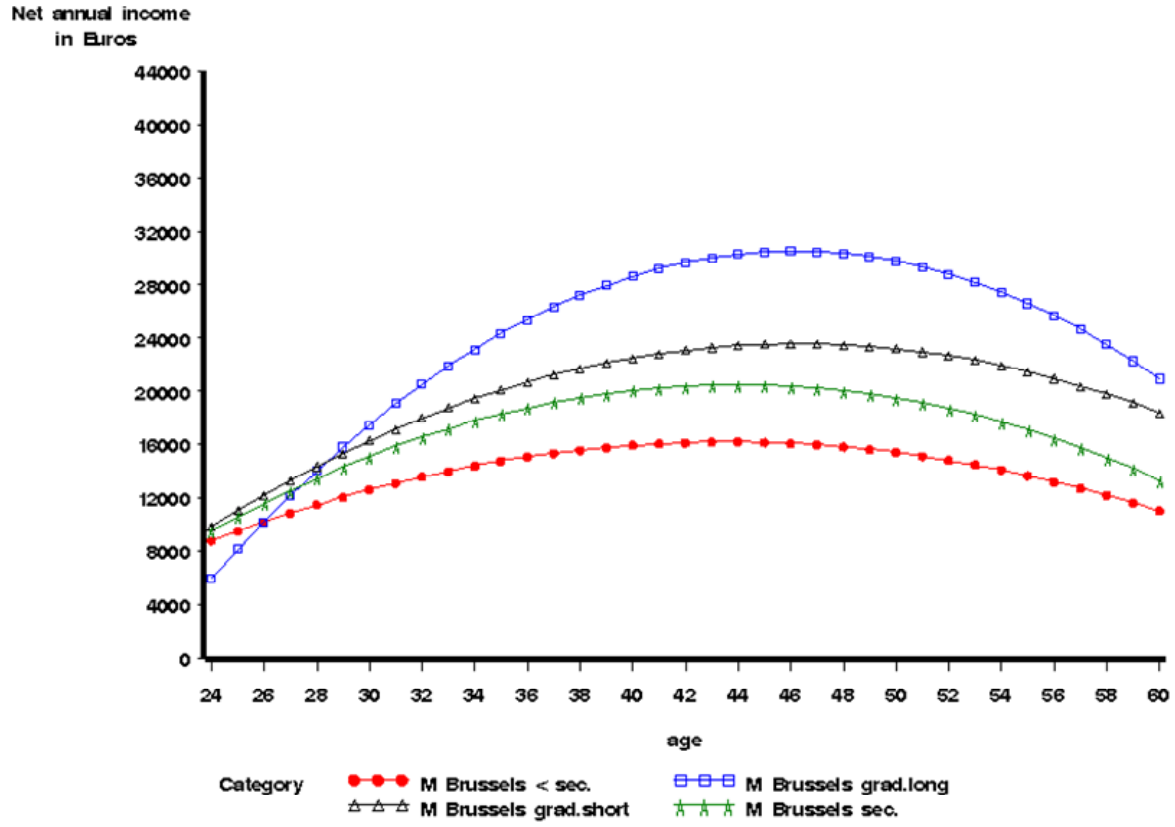
As a first step, individual net income data (y_i,) are used to estimate the OLS coefficients of a 2nd order polynomial function of experience (equation 13), separately for each category *k* as well as for more agregate categories (ie, all graduates and non-graduates).

$$y_i = \alpha + \beta\, exp_i + \gamma\, (exp_i)^2 + \varepsilon_i \qquad [13]$$

where potential work experience (*exp*) is defined as the number of years since (theoretical) graduation age (i.e; 17 for secondary school drop-outs, 19 for secondary education; 23 for higher education graduate).

Using equation 13 OLS coefficients, we then compute net income by age[10] profiles ($y_{a,j,k}$) for each type *k,* but also for more agregate categories. Examples of these profiles are displayed in graphs 1 & 2.

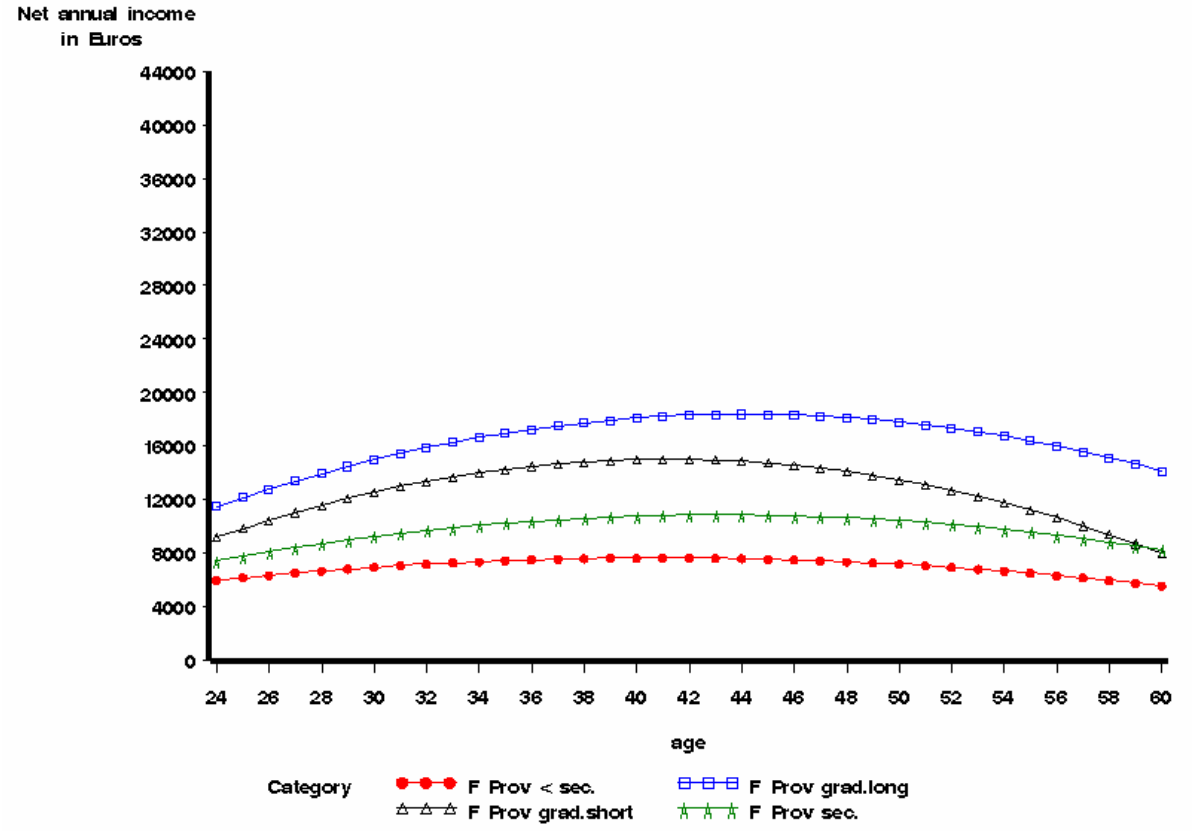
Graph 1 – Annual net income profiles. Breakdown by degree. Males living in Wallonia & Brussels



Source: PSBH2002

[10] The shift from wage/experience to wage/age function is immediate. We simply use the relation between age and potential labour experience (ie, *a* ≡ theoretical graduation age + *exp*)

Graph 2 – Annual net income profiles. Breakdown by degree. Females living in Wallonia & Brussels



Source: PSBH2002

A third step implies computing expected gross income and income tax by age profiles. This is done in two stages. We first estimate the OLS coefficients of the gross income (gy_i) regressed on a 2nd order polynomial of net income (y_i)[11] We then compute the gross income profiles ($gy_{a,j,k}$) by applying these OLS coefficients to the values generated by the net income by age profile ($y_{a,j,k}$). Taxation profiles are simply generated by the difference between expected net and gross income ($T_{a,j,k} \equiv gy_{a,j,k} - y_{a,j,k}$).

[11] This is done by pooling all PSBH observations available.

2.4. Types

As stated in section 2, it is important to explain how the various type (*k*) of individuals are defined here. Ideally, with time-series on wage and taxation, we would use information like decile or quintile of the distribution of lifetime values. But we only have cross-sectional data. So we opted for a set of categories available in the PSBH survey, hoping that they would somehow reflect the idea that lifetime earnings (or taxes) can vary. Index *k* designates types of individuals (or cells) by combining information on gender, education (highest degree obtained by respondent), and region of residence. Education is a four-category variable : i) less than secondary ii) completed secondary iii) bachelor

graduates (3 years) and (iv) master graduates(5 years)[12]; while area of residence is a dummy variable equal to 1 if people live in Wallonia or Brussels and zero if they live in Flanders. At the most desagregate level the number of types is 16. But depending on the simulation needs, these can be collapsed in more agregate categories.

Table 1 – Sample statistics. Sample size (*row %)* and breakdown by education level, gender and geographical area

		Highest degree obtained				
Gender	Region	Less than secondary	Secondary	Higher education (bachelor program*)	Higher Education (master program**)	Total
Male	Flanders	357	396	226	183	1162
		0.31	*0.34*	*0.19*	*0.16*	*1.00*
	Wallonia-Brussels	234	243	121	175	773
		0.30	*0.31*	*0.16*	*0.23*	*1.00*
Female	Flanders	317	459	329	118	1223
		0.26	*0.38*	*0.27*	*0.10*	*1.00*
	Wallonia-Brussels	273	272	181	184	910
		0.30	*0.30*	*0.20*	*0.20*	*1.00*
Total		1181	1370	857	660	4068

* non-university ** university

2.4. Net present value of lifetime income by type

We finally use the net income/age profiles to compute present value of lifetime income (equation 1). Following Jacobs (2002), we assume a 2 percent average growth rate of the level of earnings (τ). Justification for this could be that technical progress generates productivity gains that somehow benefit all individuals[13]. We also assume a discout rate (r) of 4 percent, equal to the historical return on public (risk free) european bonds. Results, displayed in tables 2 & 3 suggest sizeable differences across types k even after progressive income taxation (graph 3). They also clearly show that higher education graduates can expect much higher lifetime net income. These estimates also confirm the persistence of significant gender gaps.

[12] The first two categories or education form what we call the 'non-graduates' while the two other the 'graduates'.

[13] In the case of Belgium, but also Netherlands (Jacobs, 2002), this might be a lower bound. Long-term statistics of hourly wage growth suggest actual rates can reach 3%.

Table 2 – Present value of lifetime (24-65) net wages estimated at the age of 24. in Euros. Breakdown by education level. gender and geographical area

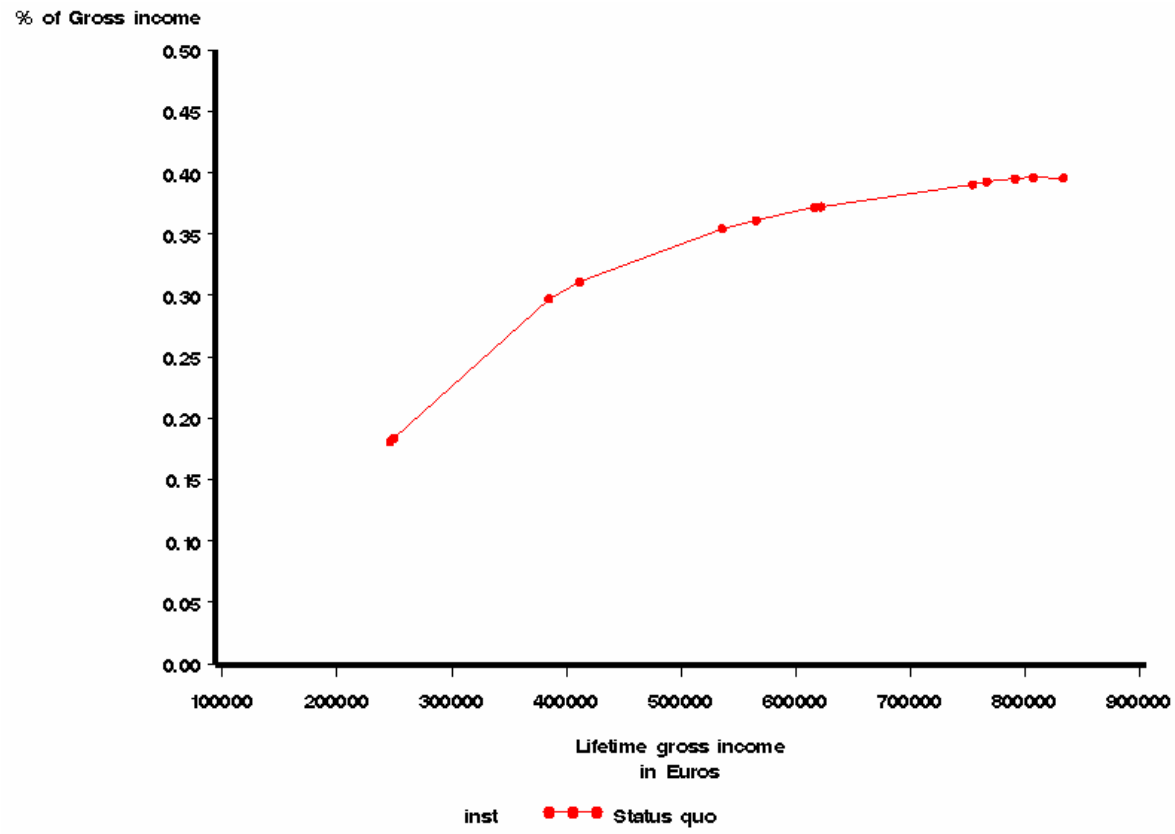
		Highest degree obtained			
Gender	Region	Less than secondary	Secondary	Hicher Education (Bachelor)	Higher Education (Master)
Female	Flanders	201,840	283,810	346,073	478,950
	Wallonia-Brussels	203,841	270,567	361,445	465,689
Male	Flanders	390,489	460,043	558,048	639,394
	Wallonia-Brussels	387,714	487,721	503,918	630,058

Assumptions: g=0.02. r=0.04

Table 3 – Relative present value of lifetime (24-65) net wages estimated at the age of 24. Breakdown by education level. gender and geographical area (1= category with maximal lifetime net earnings)

		Highest degree obtained			
Gender	Region	Less than secondary	Secondary	Hicher Education (Bachelor)	Higher Education (Master)
Female	Flanders	0.32	0.44	0.54	0.75
	Wallonia-Brussels	0.32	0.42	0.57	0.73
Male	Flanders	0.61	0.72	0.87	**1.00**
	Wallonia-Brussels	0.61	0.76	0.79	0.99

Graph 3 – Current *average income tax* (ie. taxes as % of gross income) according to level of gross income (ie. tax progressivity)



Source: PSBH02

2.5. Incidence of income-contingency

PSBH also allows us to quantify the frequency with which the income-contingency clause applies in the case of ICL. Simple econometrics help us estimate the probability of payment (μ in equations 3 and 7).

We define the loan payment/non-payment dummy (ie, the dependant variable of our econometric model) by comparing the realized level of net wages with the threshold level (Θ). Remember that the latter is defined as the *average net annual income of individuals without higher education* but similar professional experience (*exp*). Each time annual net income ($y_{exp,j,k}$) is below the no-payment threshold (Θ_{exp}) we conclude to default (*Pay=0*), and normal payment of instalment Ω otherwise (*Pay=1*). Specification used is logistic, with a 2nd order polynomial function in *exp*.

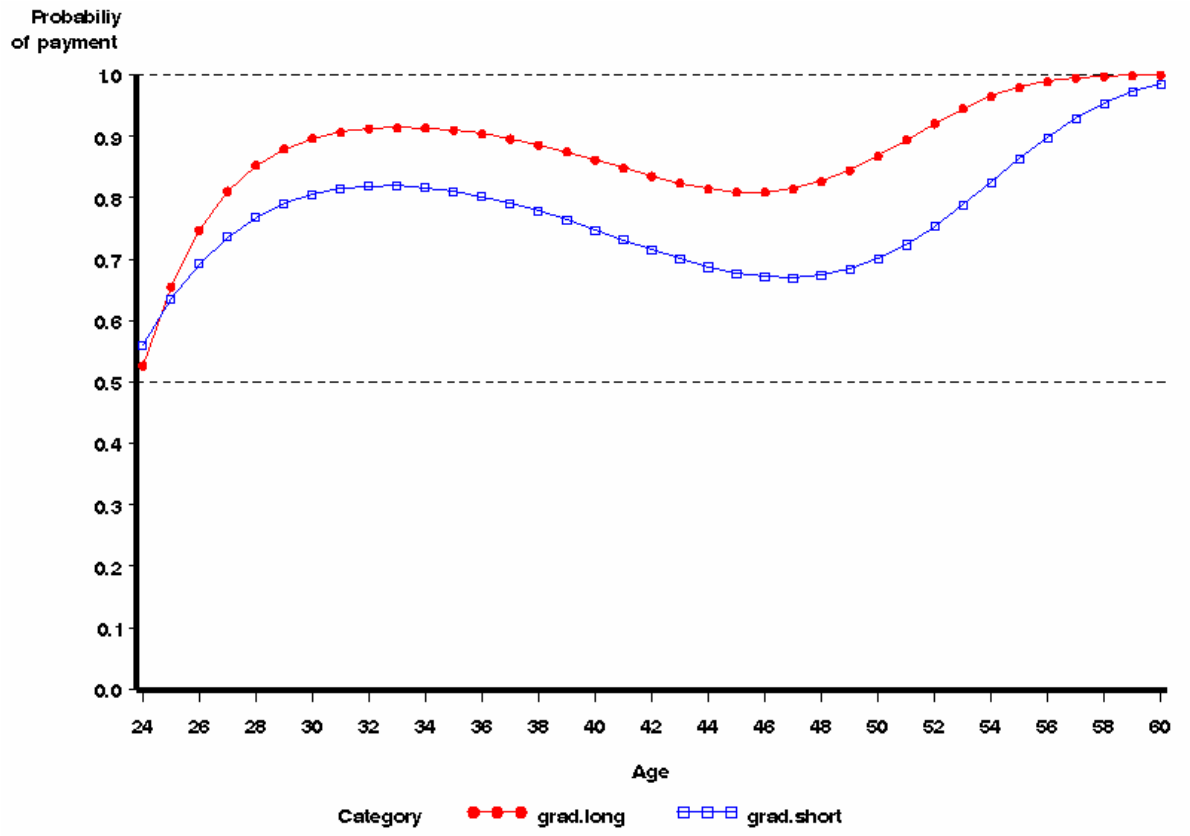
$$Prob(Pay=1,j,k) \equiv \mu_{exp,j,k} = exp(\Delta_{j,k})/[1+exp(\Delta_{j,k})] \quad [14]$$

where $\Delta_{j,k} \equiv \rho + \varsigma\, exp_{j,k} + \sigma\, (exp_{j,k})^2$

Predicted values of probability of payment are plotted on graph 3 for both short and long higher education graduates. The highest probability of payment is observed among master programs graduates. Graph 4 clearly suggests that the income-

contingency is likely to be more important as an insurance mechanism for students who attend bachelor programs. The same graph also indicates that risk of default is clearly diminishing (probability of paying rising) between the age of 24 and 30, particularly for students who graduate from master programs.

Graph 4 – Probability that higher education graduates pay their income-contingent instalment according to age



Source: PSBH00

2.6. Contribution according to instrument and by category of individuals

The last set of estimates to report are the most interesting ones. Using the econometric results of previous sections, we compute present value of lifetime *contributions* for each instrument (HCC, ICL, IT) -- see equations 6, 7 & 8 -- and for each of our 16 types of individuals *k*.

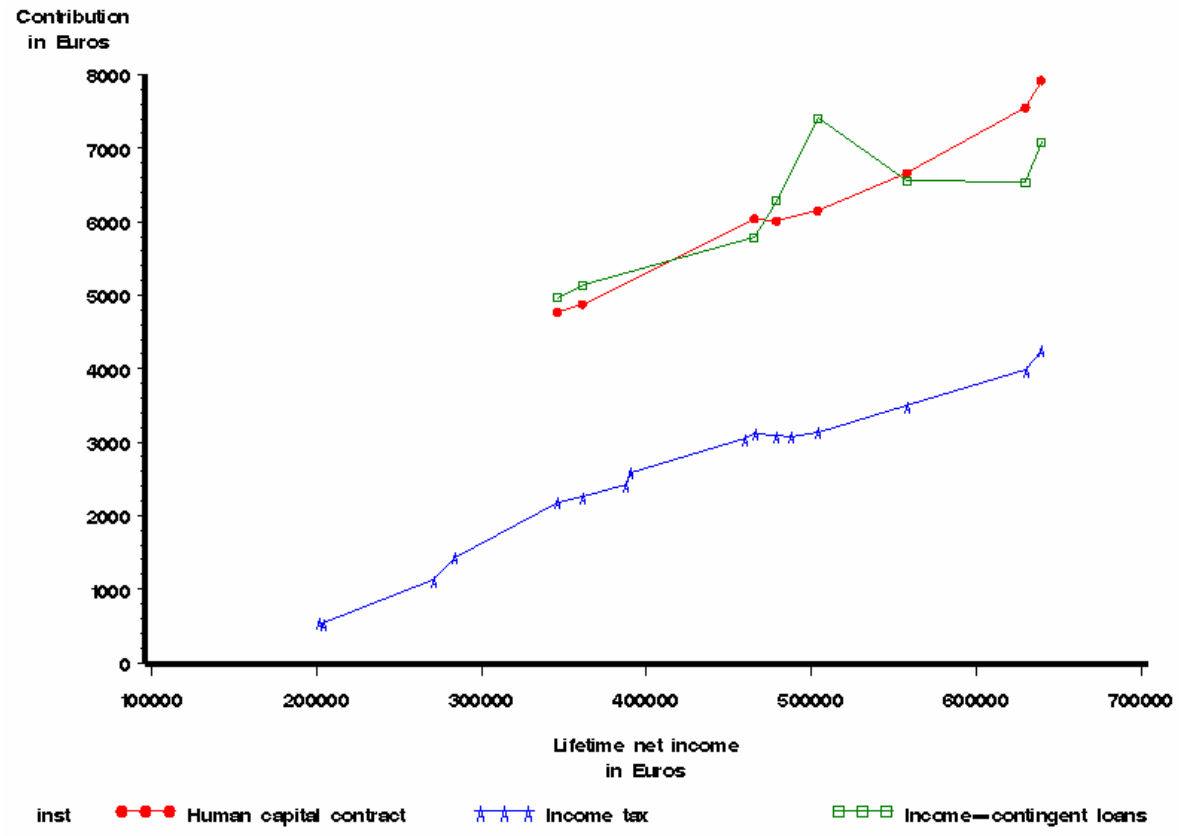
Computations are based on the following technical assumptions. General level of wage growth per year is 2 percent (τ=0.02). Discount rate is 4 percent (r=0.04). Investment is made at age 18 and payment starts at age 24 (5 years of grace) for a period of 20 years (total duration of contract D=25). All values are expressed in Euros at the age of 24. The amount of money invested (*INV)* at the age of 18 is 5,000 Euros (ie, 6,083 Euros at the age of 24). Finally, the proportion of a cohort that is likely to graduate is set to 35 percent (α =0.35 in equation 5*)*

The levels of contributions (in Euros at the age of 24) are reported in graph 5.

The first result is that resorting to private finance instrument reduces the antiredistributive nature of finance by IT. It is true that IT, particularly when receipts financing "free" higher education come from progressive income taxation, graduates, because they earn more and pay more taxes, contribute more than non-graduates. But a sizeable fraction of the total cost is supported by non-graduates; partially because some of them face lifetime wage prospects that are equivalent to those of graduates, but more likely due to the fact that contributions via IT is far from negligible within the income range in which many non-graduates fall. Our estimation (τ, see equation 5) suggest that up to 48 cents of each additional Euro spent on higher education and finance via income taxation is actually paid by non-graduates.

The other interesting result is the comparison between ICL and HCC. Both ensure that those facing lower lifetime wage prospects contribute significantly less. In the case of HCC, contributions range from 4,300 Euros to 7,700 Euros. However, HCC dominates ICL in accounting for the level of lifetime income to establish individual contribution.

Graph 5 -- Present value of contribution by individuals according to instrument of higher education finance



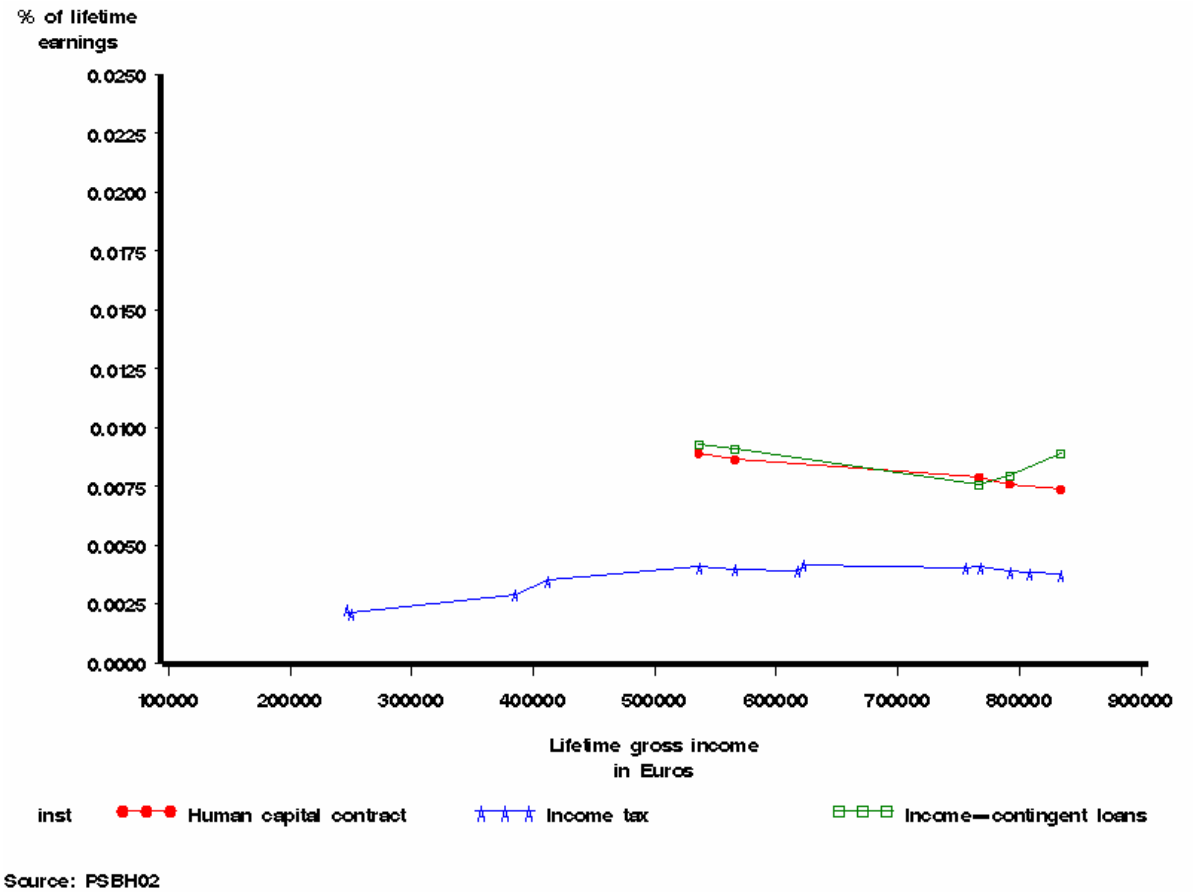
Source: PSBH02

Graph 6 is based on the same results as graph 5, with the nuance that contributions are expressed in *percentage* of total lifetime wages. The first thing to highlight is that contributions requested by HCC and ICL contracts worth 5,000 Euros represent a fairly small fraction of lifetime net wages: between 1.00 and 1.52 percent.

Via graph 5, we are also capturing the *progressiveness* of contributions asked to individuals. A flat curve directly echoes the idea of proportional contribution (constant average contribution). A declining curve suggests regressivity (declining average contribution). And a rising curve corresponds to progressivity (rising average contribution).

Using this common classification, it turns out again that HCC dominates ICL. Loans are indeed regressive as they fail to ensure that wealthier graduates contribute a higher percentage of their lifetime net wages. Quite logically, HCC are synonymous with proportional contribution. The only mechanisms that appears progressive is IT. Yet, it is essentially the case at the bottom (left hand side). And the big differences concern types of individuals who do not attend higher education. The reader should also remember that IT violates the benefit principle.

Graph 6 - Present value of contribution by individuals in percentage of lifetime income (24-65) according to instrument of higher education finance.



Source: PSBH02

3. The cost of income-contingency

To provide students with income-contingency -- and avoid among other problems high non-take up rates by risk-averse students -- two general approaches could be considered: *risk pooling* among students or *risk shifting* to society. As stated in the introductory section, it is important, especially for students from disadvantaged background to have some insurance in case of lost of earnings. The case for income contingency is also supported by basic human capital theory as well as justice principle (ability to pay). Risk pooling is an insurance system where risks of default are shared among graduates. Annual instalments for example contain a risk premium to cover the average cost of default of a given population of students, the premium reflecting the group risk rather than the individual risk.

3.1. Cost shifting

Our analytical framework -- particularly that developed for ICL -- offers a simple way to quantify the cost for the taxpayer of offering income-contingent loans to students while asking them to pay an annual instalment without any risk premium. All that is needed is to estimate equation with and without considering a probability of payment μ. So far, we have considered the case with risk of non-payment ($\mu<1$) and that gave us a plausible value of the annual instalments with (Ω). The calculus can be redone with $\mu=1$. The result is simple the risk-free installment (Ωrf) that could be asked to the graduates. And the ratio between the two instalments ($\Omega/\Omega rf = 1 + rp$, with $rp>1$) simply represents the level of the risk premium that should be paid by the taxpayer.

Our best estimate suggests a value of 0.28 for *rp*. In other words, the taxpayer would have to pay up to 28 cents for every Euro invested via an ICL with cost-shifting. However, Barr (2001, 2002) suggests this option might, in the EU context, lead to public debt classification (ie, student contracts classified as public debt).

3.2. Cost pooling and adverse selection

It might thus be important to pay some particular attention to the other way of financing income-contingency: cost pooling. In the case of ICL, this simply means that the cohort must pay an annula installment incorporating the risk premim of 28% estimated above. Similarly, when computing the percentage or future wages requested by the HCC investor (θ in equation 2), we can – as we implicilty did -- pooled graduates with relatively low (eg, women) and high (eg, men) lifetime income. As a consequence, the estimated value of θ incorportate the cost of low-or-no contributions spells.

But cost-pooling raises the threat of adverse selection. Simple computations reported in table 4 suggest that, in the case of HCC, the cost for master programs Belgian graduates to be pooled with bachelor programs individuals represents a 13 to 14% increase in the percentage points of income (θ) the lender is likely to demand. In other words, cost pooling implies within a cohort of graduate, redistribution from those with high lifetime wages to those with lower wages.

Table 4– Human capital contracts (HCC). Percentage of earnings committed depending on degree of pooling among graduates

Category (k)		Percentage of income* committed (θ)	Cost of pooling
All graduates pooled	a	2.15%	
Graduate master programs	b	1.90%	a/b=1.13
Graduates bachelor programs	c	2.41%	
Adjutment factor to avoid adverse selection:	$\lambda = 2 - \theta_{Grad.\ short}/\theta_{Grad.\ long} = 2 - 2.41/1.90 = 0.734$		

*Present value of income over the duration of the contract

This principle of pooling was used for the Tuition Postponement Option at Yale University – an ICL programs -- in the early 1970's, and was not very successful. Its main disadvantage is to put the borrowers at some risk, depending on the probable future wages capacity of the borrowing class, and more particularly on how many potential high earners choose to exit the income contingent repayment scheme for fear of getting into a cohort with too many potential low earners. This is an illustration of the typical *adverse selection* problem.

To mitigate its severeity, the coverage of private finance scheme should be as large as possible (ie, applicable to the full cohort of students enrolled in the higher education system) as we have assumed throughout this paper. But even in this more favourable context, we should fear adverse selection. Estimates in table 4 immediately reveal that an HCC scheme implemented with long-program-only graduates[14] is less expensive than a scheme also including short program graduates. This potential reduction of cost could be sufficient to trigger off secession.

However, *investing less money on bachelor programs students* should reduce the seriousness of this problem. Indeed bachelor programs students can (and even *should*, given the ability to pay principle) be asked to pay *lower cumulated fees,* and consequently borrow less money to finance their study program. Algebraically, in the case of an HCC, this means imposing that investment (*INV*) by short program students represents only a fraction $0<\lambda<1$ of their peers. And to avoid adverse selection, this fraction λ should be such that pooled contribution (θ^p) is equal to the one faced by master programs graduates in a non-pooling context ($\theta_{Grad.\ long}$). Referring to equation 2 we seed that θ is stricly proprotional to *INV* . We can thus identity λ by solving:

$$\theta^p \equiv \pi\, \lambda\, \theta_{Grad.\ long} + (1-\pi)\theta_{Grad.\ short} = \theta_{Grad.\ long} \qquad [15]$$

with:

$0 < \lambda < 1$

π being the proportion of long program graduates in the total population of graduates;

or equivalently, assuming $\pi = 1/2$:

$$\lambda = 2 - \theta_{Grad.\ short}/\theta_{Grad.\ long} \qquad [16]$$

[14] Mainly university programs

Results in table 4 suggest that the typical HCC investment on a student attending a short program should be equal to 73% of that of a long program student. This reduction factor might appear important. But it is inferior to what we would expect in the Belgium system with *uniform annual fees* across higher education institutions but *varying lengths of programs.* Considering that bachelor programs last 3 years, while it takes 5 years to complete the long ones, we should end up with a loan size ratio of 3/5 (ie, 60%). In other words, pooling short and master programs, with uniform annual fees (eg, 1,000 Euros), would mechanically lead to the kind of investment size adjustment needed to cope with adverse selection.

4. Conclusion

The main result of this paper is that instruments of private finance, combining deferred and income-contingency payments, offer opportunity to raise significant sums to finance higher education, while addressing the problem of the risky nature of human capital investment. Their cost for individuals, given and investment of 5,000 Euros, remains fairly marginal: at most bit 1.6% of current lifetime net income.

Both ICL and HCC display strong vertical *equity* virtues, as payments are indexed on graduates' ability to pay. It also clearly emerges that they are considerably more expensive for graduates than traditional finance by higher income taxation (IT). In the Belgian context, resorting to income taxation is synonymous of some regressive transfers from non-graduates to graduates.

As to indexing payments on ability to pay, HCC marginally domimates ICL. HCC requires from the borrowers sums that are strictly proportional to wages. With ICL, by constrast, reference to ability to pay is much less accurate. Indexation simply consists of exhonerating individuals who fall below a predefined income threshold: no reference is made to the earning differences below or above that threshold.

Both ICL and HCC are income-contingent and thus contain an insurance. Who should pay for it? Options available are essentially twofold. First, cost shifting. In that case, the cost of defaulting is borne by the taxpayer. But a total transfer of risk from lenders to the public sector induces a substantial fiscal cost. It would also probably lead public sector watchdogs to consider student contracts as public debt, adding to the strain public finances currently face.

This leaves us with the pooling option that we retained throughout this paper, where payments contain a premium to cover the average cost of default among the cohort. The main advantage of pooling is that is redistributive. Its drawback is its exposure to adverse selection, as potential high earners might push for exiting the scheme for fear of getting into a cohort with too many low earners. To mitigate this effect, the coverage of the student private finance scheme should be as large as possible (ie, applicable to the full cohort of students enrolled in the higher education system) as we assume in most of our simulations. *De facto* this would confer the private scheme a status almost equivalent to that of a State institution. It would also make transfers between categories of graduates less traceable or visible.

But even so, adverse selection might compromise the scheme's long run sustainabilitiy. Our last set of computations suggest indeed that high earners graduates would face and HCC price tag inflated by 13% if pooled with low earners. However we also show that investing *less* money on students opting for less profitable programs potentially eliminates this cost. The tentative conclusion is that students opting for programs offering lower wage prospects should borrow less money.

Acknowledgements

We would like to thank L. Jacquet , M. Spritsma & Panu Poutvaara for their helpful comments and suggestions on preliminary versions of this text. All remaining errors and omissions are ours. We benefited from the financial support of the ARC convention 02/07-274.

Bibliography

Bhagwati, J.N. & Wilson, J.D. Ed. (1989), *Income Taxation and International Mobility*, MIT press, Cambridge, Ma.

Barr, N. (2001), *The Welfare State as Piggy Bank: Information, Risk, Uncertainty, and the Role of the State*, Oxford University Press, Oxford.

Barr, N. (2002), *Funding higher education: policies for access and quality*, House of Commons Education and Skills Committee, London.

Chapman, B. (1997), Conceptual Issues and the Australian Experience with Income Contingent Charges for Higher Education, *The Economic Journal*, 107 (442),;738-751.

Chapman, B. (2001), Australian higher education financing: issues for reform, *Centre for Economic Policy Research, DP No 434*, Australian National University

Chapman, B. & Ryan, C. (2002), Income-contingent financing of student charges for higher education: assessing the Australian innovation, *Centre for Economic Policy Research, DP No 449*, Australian National University.

Chapman, B. & Beer, G. (2004), HECS System Changes: Impact on Students, *Centre for Economic Policy Research, DP No 484*, Australian National University.

Debande, O. (2003), *Student finance schemes: a market assessment*, EIB sector paper, EIB, Luxemburg.

Greenaway, D. & Haynes, M. (2003), Funding higher education in the UK: the role of fees and loans, *The Economic Journal*, 113, 150-166.

EU Commission (2005) Mobilising the brainpower of Europe: enabling universities to make their full contribution to the Lisbon Strategy, *Communication from the Commission, 20/05/2005*, Brussels.

Jacobs, B. (2002), An investigation of education finance reform – Graduate taxes and income contingent loans in the Netherlands, *CPB Discussion Paper*, July.

Johnes, G. (1993), *The Economics of Education*, The MacMillan Press, London.

Johnstone, B. (2004), The economics and politics of cost sharing in higher education: comparative perspectives, Economics of Education Review 23 (2004) 403–410

Kremer, M. (1993), The O-Ring Theory of Economic Development, The Quarterly Journal of Economics, 108 (3), 551-75.

Office National de l'Emploi (2003), Lien entre rémunération du travail et allocation de chömage, Brussels.

Palacios, M. (2004), Investing in human capital: a capital markets approach to student funding, Cambridge University Press, Cambridge.

Teichler, U. & Jahr V. (2001), Mobility during the course of study and after graduation, European Journal of Education, 36 (4), 443-458.

Van der Linden, B. & Dor, E. (2001), Labor market policies and equilibrium unemployment: Theory and application to Belgium, Working Paper 2001-5, IRES.

Cahiers de Recherche en Éducation et Formation

Déjà Parus :

Thiéry F., Zachary M-D., De Villé Ph., Vandenberghe V. (1999) Enseignement initial : les enjeux du développement de l'enseignement supérieur sur fond de crise de l'enseignement secondaire qualifiant, *Les cahiers de Recherche du GIRSEF*, n° 1.

Conter B., Maroy C., Urger F. (1999) Le développement de la formation professionnelle continue en Belgique francophone, *Les cahiers de Recherche du GIRSEF*, n° 2.

Vandenberghe V. (1999) Regard rétrospectif sur la dynamique des dépenses d'enseignement en Communauté française de Belgique :1988-1998, *Les cahiers de Recherche du GIRSEF*, n° 3.

Dupriez V., Maroy C. (1999) Politiques scolaires et coordination de l'action, *Les cahiers de Recherche du GIRSEF*, n° 4.

Doray, P. (2000) Les articulations entre formation professionnelle initiale et formation continue au Québec :quelques pistes de travail, *Les cahiers de Recherche du GIRSEF*, n° 5.

Casalfiore S. (2000) L'activité des enseignants en classe. Contribution à la compréhension de la réalité professionnelle des enseignants, *Les cahiers de Recherche du GIRSEF,* n°*6.*

Vandenberghe V. et Zachary M-D. (2000) Efficacité-équité dans l'enseignement secondaire de la Communauté Wallonie Bruxelles : essai d'évaluation dans le cadre d'une comparaison internationale, *Les cahiers de Recherche du GIRSEF,* n°7.

Vandenberghe V. (2000) Enseignement et iniquité : singularités de la question en Communauté Wallonie-Bruxelles, *Les cahiers de Recherche du GIRSEF,* n°8.

Guyot J.-L., Bonami M. (2000) Modes de structuration du travail professoral et logiques disciplinaires à l'Université, *Les cahiers de Recherche du GIRSEF,* n°9.

Cattonar B. (2001) Les identités professionnelles enseignantes. Ebauche d'un cadre d'analyse. *Les cahiers de Recherche du GIRSEF,* n°10.

Maroy C. et Doray, P. (2001) La construction des relations écoles / entreprises. Le cas de la formation en alternance en Communauté Française de Belgique et au Québec, *Les cahiers de Recherche du GIRSEF,* n°11.

Maroy C. (2001) Le modèle du praticien réflexif à l'épreuve de l'enquête, *Les cahiers de Recherche du GIRSEF,* n°12.

Mangez E. (2002) Régulation et complexité des rapports familles – écoles, *Les cahiers de Recherche du GIRSEF,* n°13.

Waltenberg F. D. (2002) Polarisation et appariements sélectifs des individus. Etat de la question , *Les cahiers de Recherche du GIRSEF,* n°14.

Waltenberg F. D. et Vandenberghe V. (2002) Etat des lieux de mobilité des élèves en cours de scolarité primaire en Communauté française Wallonie – Bruxelles. Une analyse économique et quantitative, *Les cahiers de Recherche du GIRSEF,* n°15.

Casalfiore S. (2002) Les petits conflits quotidiens dans les classes de l'enseignement secondaire. I. Nature et sens des transgressions sociales à l'origine des conflits dans la dyade enseignant-élève, *Les cahiers de Recherche du GIRSEF,* n°16

Cahiers de Recherche en Éducation et Formation (suite)

De Villé Ph. (2002) Equal opportunity in the educational system and the ethics of responsibilty, *Les cahiers de Recherche du GIRSEF,* n°17

Maroy M. et Cattonar B. (2002) Professionnalisation ou déprofessionnalisation des enseignants ? Le cas de la Communauté française de Belgique. *Les cahiers de Recherche du GIRSEF,* n°18.

Dauphin N. et Verhoeven M. (2002) La mobilité scolaire au cœur des transformations du système scolaire. *Les cahiers de Recherche du GIRSEF,* n°19.

Casalfiore S. (2003) Les petits conflits quotidiens dans les classes de l'enseignement secondaire. II. Nature des stratégies de résolution, *Les cahiers de Recherche du GIRSEF,* n°20

Casalfiore S. (2003) Les petits conflits quotidiens dans les classes de l'enseignement secondaire. III. Conception de l'autorité chez les élèves, *Les cahiers de Recherche du GIRSEF,* n°21

Vandenberghe V. (2003) Un enseignement secondaire technique et professionnel (dé)valorisé ?, *Les cahiers de Recherche du GIRSEF,* n°22

Dupriez V. (2003) La coordination du travail dans les établissements scolaires: les différentes voies de construction de l'accord, *Les cahiers de Recherche du GIRSEF,* n°23

Dupriez V. et Draelants H. (2003) Classes homogènes versus classes hétérogènes : les apports de la recherche à l'analyse de la problématique, *Les cahiers de Recherche du GIRSEF,* n°24

Letor C. et Vandenberghe V. (2003) L'accès aux compétences est-il plus (ini)équitable que l'accès aux savoirs traditionnels ?, *Les cahiers de Recherche du GIRSEF,* n°25

Galand B. et Gillet M.-P. (2004) Le rôle du comportement de la direction dans l'engagement professionnel des enseignants, *Les cahiers de Recherche du GIRSEF,* n°26

Dupriez V. et Vandenberghe V. (2004) L'école en Communauté française de Belgique : de quelle inégalité parlons-nous? *Les cahiers de Recherche en Éducation et Formation,* n°27

Vandenberghe V. (2004) Achievement Effectiveness and Equity. The role of Tracking, Grade-Repetition and Inter-school Segregation**,** *Les cahiers de Recherche en Éducation et Formation,* n°28

Galand B. et Vanlede M. (2004) Le sentiment d'efficacité personnelle dans l'apprentissage et la formation : Quel rôle joue-t-il? D'où vient-il? Comment intervenir?*Les cahiers de Recherche en Éducation et Formation,* n°29

Vandenberghe V. (2004) Les tendances longues de l'accumulation du capital humain en Belgique, *Les cahiers de Recherche en Éducation et Formation,* n°30

Dupriez V. et Dumay X. (2004) L'égalité dans les systèmes scolaires : effet école ou effet société ? *Les cahiers de Recherche en Éducation et Formation,* n°31

Waltenberg F. (2004) What is justice in education? Sketch of answer based on theories of justice and economics. *Les cahiers de Recherche en Éducation et Formation,* n°32

Frenay M. et Paul C. (2004) Le développement de projets pédagogiques : reflet ou source de l'engagement de l'enseignant universitaire dans ses activités d'enseignement ? *Les cahiers de Recherche en Éducation et Formation,* n°33

Cahiers de Recherche en Éducation et Formation (suite)

Dumay X. (2004) Effet établissement : effet de composition et/ou effet des pratiques managériales et pédagogiques ? Un état du débat. *Les cahiers de Recherche en Éducation et Formation,* n°34

Dupriez V. (2004) La place de l'évaluation comme ressource pour le pilotage des systèmes scolaires : état des lieux en Belgique francophone et en Angleterre. *Les cahiers de Recherche en Éducation et Formation,* n°35

Dumay X. et Dupriez V. (2004) Effet établissement : effet de processus et/ou effet de composition ? *Les cahiers de Recherche en Éducation et Formation,* n°36

Galand B., Bourgeois E. et Frenay M. (2005) The impact of a PBL curriculum on students' motivation and self-regulation. *Les cahiers de Recherche en Éducation et Formation,* n°37

Bonami M. (2005) Evaluation interne et évaluation externe : concurrence ou complémentarité? *Les cahiers de Recherche en Éducation et Formation,* n°38

Galand B. (dir.) (2005) L'échec à l'université en Communauté française de Belgique. *Les cahiers de Recherche en Éducation et Formation,* n°39

Draelants H. et Giraldo S. (2005) La politique d'éducation au risque de sa réception sur le terrain. Analyse de la mise en œuvre d'un dispositif d'« année complémentaire » dans trois établissements contrastés. *Les cahiers de Recherche en Éducation et Formation,* n°40