

Financing Higher Education in the Mediterranean Region

The Case of Egypt, Lebanon and Tunisia

Thomas MELONIO and Mihoub MEZOUAGHI, AFD

*With contributions from IREDU
and the Paris School of Economics*



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Recherches

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Acknowledgements

We would like to thank Jean-François Giret, Philippe Maalouf and Bruno Suchaut (IREDU, Université de Bourgogne), Jean-Claude Balmès, Christian Barrier, Bruno Bosle, Laurent Cortese, Hervé Dubreuil, Jean-Christophe Maurin and Bertrand Nora (AFD) for their comments and suggestions, as well as Françoise Tiffoin for her careful rereading. Our thanks also go to all our AFD colleagues involved in organizing the field missions in Egypt, Lebanon and Tunisia.

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Designed and produced by Ferrari/Corporate – Tel.: 33 (1) 42 96 05 50 – J. ROUY / Coquelicot
Printed in France by STIN

Summary

In their book *Le Rendez-vous des civilisations* (2007), Youssef Courbage and Emmanuel Todd highlight the convergence between demographic regimes in the North and the South Mediterranean regions. The substantial decline in the fertility rate of the North African and Middle-Eastern (MENA) countries, which has dropped to levels very close to those of the developed countries, seems to show that their demographic transition has now reached its term. From this point on, these countries should reap the “dividends” stemming from a decrease in the age dependency ratio (non-working/working population). However, this analysis should not be allowed to obscure the major implication of these changes: the mass entry of student cohorts into the education system (particularly higher education) over the next fifteen years and, likewise, of young people into the job market.

Through its analysis of the shortcomings of higher education systems in three of the region’s countries, namely Egypt, Lebanon and Tunisia, this report opens up some lines of reflection on support for the private university sector, fairer access to higher education and, more broadly speaking, support for public policy-making in the face of a pressing need for reform. There are several lessons to be learnt from this analysis:

- Growth of the private higher education sector is inevitable, given the strong social demand. The increase in transition rates between secondary and higher education and the gradual overcrowding of state universities fosters, in relative terms, private higher education. This private sector growth could be held in check by the public authorities, but nothing is likely to impede it in the long run. The challenge for policy-makers is thus both to avoid a situation in which private education develops independently of public education, and to come up with public and private rationales that are complementary. Yet, past experience tends to show that, on the contrary, the operative logic involves either the private sector serving as a substitute for the public sector (Lebanon) or the private sector becoming marginalised.
- Public higher education will nonetheless remain dominant (except in Lebanon). Given that governments will find it difficult to maintain a constant level of per-student expenditure, the question of reforming the entire state education system is also raised. While the mass unemployment of young graduates and a decline in the standard of degrees appear to be the price to pay for inaction, reform would bring the authorities

up against some difficult choices: spiralling budgets or an overhaul of the higher education sector (selection on the basis of academic ability, rethinking teachers' status and teaching practices, balancing technical fields of studies and the humanities, changing the language of instruction, developing quality control mechanisms).

- Poor employability prospects for graduates create the need for professionally oriented study paths underpinned by various action levers: redirecting student intakes towards programmes offering the best labour market outcomes, the integration of secondary and higher technical education, the involvement of business/industry in defining curricula, the internationalisation of higher education institutions and academic accreditation.
 - The internationalisation of private universities and private schools, through partnerships, certification, accreditation and greater student mobility, offers a comparative advantage. In the future, these private-sector players could develop two high-growth business segments: the export of educational services to the regional market and skills upgrade programmes for the current stock of young graduates.
 - The expansion of private higher education nonetheless runs a substantial risk of inefficiency and inequity, owing to the social selectivity of private universities. In effect, the demand for financing of schooling barely receives any State intervention, and relies above all on self-funding and not enough on financial aid (scholarships and student grants). Broadening access to bank loans would likely lead to easier access to programmes of excellence, including for the neediest students.
 - Higher education reform comes up against institutional resistances that have been inherited from a tradition of state control (Egypt, Tunisia) or induced by the need to preserve confessional balances (Lebanon). Implementing reform thus also needs to take the specific socio-political features of each country into account as these may stand as potential inhibiting factors.
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General Introduction

This book analyses the conditions for the emergence and expansion of private higher education in the Mediterranean region on the basis of the sector's observed constraints and shortcomings and, then, looks at examples of the financing mechanisms likely to support initiatives for reform.

Higher education in a globalised setting: liberalisation and public policy

This line of thinking must be tied into the context of the main education trends. Over recent years, higher education has embarked on a process of globalisation, which at the same time involves a restructuring of the education system, an opening up of the sector to new players, and a diversification of the sources of funding. These transformations stem from three concurrent processes:

- ***The transition to the knowledge economy:*** The fact that innovation has been shown to be a determining driver of economic growth implies that efforts be made to achieve an integrated relationship between industry, education and science. In a context where international competition is rooted in the production and acquisition of knowledge and skills, universities hold a pivotal position in the training of highly qualified people, in the emergence of high value-added industrial activities and in building of scientific and technological centres of excellence.
- ***The liberalisation of education services:*** Deregulation in primary and secondary education, and even more in higher education, has fostered the (joint) participation of new actors (businesses, banks, foundations, community institutions, sponsors and foreign states) in differentiating the educational offering, defining curricula and diversifying the sources of funding. The "privatisation" of higher education has resulted in the creation of private universities and, to a lesser extent, the introduction of professionally oriented programmes in state-funded universities.
- ***The opening up of national labour markets:*** The growing international mobility of labour, notably skilled labour, has contributed to a substantive change in the mission of universities. Originally geared towards academic disciplines, higher education has recently begun to give priority to education paths more tailored to the productive sector and to the validation of work experience. The divides between initial and

continuing training, between university and vocational training are tending to fade or, at least, to be reshaped.

These trends need to become anchored to varying extents depending on the country, and in ways specific to developing countries. Globalisation of education in fact raises two fundamental issues:

- *Sovereignty*: Owing to the cultural (and more broadly speaking political) content of education, States are keen not to lose control over their education policies, which is even more the case for States still marked by a long experience of a centrally planned economy.
- *The role of education in growth models*: The diversity of national development paths has revealed a consensus on the determining role of human capital accumulation in triggering an endogenous growth dynamic, thus reducing exposure to external shocks.

The core issue is certainly the reform of the national higher education system – which is a key component of a country’s economic and social development – with a view to improving the quality of tuition and qualifications and to helping the sector to adapt to changing economic systems.

The critical role of employment in the Mediterranean region

In the countries of the South and East Mediterranean, these evolutions are on a collision course with the central issue of employment. The region as a whole is facing a “demographic shock” due to the lagged effect of the demographic transition that began in the 1970s and 1980s. The decline in the birth rate has caused a sharp slowdown in population growth, along with a change in the age-structure of the population.

According to the World Bank, the growth of the working-age population will outstrip that of the non-working population between 1990 and 2020. The working-age population in the North African and Middle East region (MENA), estimated at 104 million people in 2000, should reach 146 million by 2010 and 185 million by 2020. In the light of these projections, the Bank estimates that 100 million jobs will need to be created in the region between 2000 and 2020.

The employment rate remains relatively low on average (close to 47 per cent), which translates into a situation of mass unemployment and underemployment (mostly affecting the youth). Certainly labour market growth is considerably lower than the growth of the working-age population. Moreover, and somewhat paradoxically, the employment rate is inversely related to the level of qualification of individuals. The squeeze on conditions for positive employment outcomes for young graduates is

creating a problematic situation. Graduate unemployment in the region is estimated at between 20 and 30 per cent on average according to official data (surveys estimate that this rate is close to 50 per cent one year after graduation).

The question of employment is thus highly worrisome. This situation involves several types of risk:

- A major *social risk*, as demographic pressures over the next two decades will shift a heavy burden onto state budgets, unless economic growth marks a significant rise. States could then be forced to rely on social policy initiatives to address employment issues in an attempt to absorb a growing stock of jobless graduates.
- An *economic risk*, brought on by an increasing number of unfilled job vacancies due to a deficit of skilled labour in specific market segments. Several foreign industrial investment projects could then decide to relocate to other production sites because of the insufficient supply of skilled workers (managerial and middle-skilled), revealing a workforce that lacks depth in some areas of qualification.
- A *political risk*, which is more difficult to assess: dissatisfaction among young people is liable to feed movements of discontent in both urban and rural environments.^[1] Unemployed graduates could bolster the already high number of occupationally downgraded and economically inactive workers. Narrowing opportunities for entry into the job market would further deepen social inequalities.

As a result, the demographic setting in these countries means that it is imperative to change growth paths. Certainly, the onset of a long-term cycle of about fifteen years, which will see a huge influx of new labour market entrants (including a growing number of higher education graduates), will require not only an average growth of 7 per cent – which would do no more than maintain youth unemployment rate at its present level (between 10 and 20 per cent according to official data) – but also a transition of production models to higher-value-added activities.

The challenge of higher education in the Mediterranean region

The Mediterranean is probably the developing region where state investment in education has been the highest. Yet it is also the region in which the decoupling between the cycles of economic growth and human capital accumulation has been the most obvious.

[1] Over the past years, popular protest movements, largely motivated by demands related to access to jobs, have repeatedly occurred in many countries.

On the whole, the countries in the region have reported considerable progress in improvements to the overall level of education: universal access to basic education, high secondary enrolment rates, increase in postsecondary admission capacity, reduction of urban/rural and gender par inequalities, and so on. Despite these advances, economic growth over recent decades has remained sluggish and generally unresponsive to the growing supply of skilled labour.

The decoupling between human capital accumulation and economic growth may be explained by several factors: *i)* the poor quality of higher education; *ii)* its disconnection from the productive sector; *iii)* the marginalisation of vocational education; *iv)* the perverse effects of an inadequately managed policy of “Arabisation” (notably in the Maghreb); and *v)* the mass expatriation of qualified skills (which, in the medium term, could also be a factor of economic growth).

The deterioration of public higher education (and the quality of degrees) has translated into low returns (compared to other developing regions) and a limited access to employment. Against this backdrop, there has been an expansion of the private higher education sector, which depending on the country follows either a logic of substitution (when public education is failing) or a logic of complementarity (when the State’s regulatory capacity remains intact). It is not always easy to distinguish between the two in a given country and, more often than not, the most observable relationship between the public and private sectors is one of competition, if not rivalry.

The reform of higher education very likely constitutes a terrain for the renovation of public policy and, more broadly, of growth models. In this perspective, the Mediterranean region countries are facing three challenges:

- The challenge of sectoral reform, considering that the private component of the higher education sector can play a role in modernisation by introducing professionally oriented programmes, anticipating new needs, and developing the provision of skills upgrades for young graduates or managers. The private component can also indirectly help to steer the public higher education system towards a convergence (“upgrading”) with international standards by integrating fields of study, internationalising diplomas (“branding”, international partnerships), encouraging accreditation or improving the mobility of teachers and students.
- An economic challenge, since the private higher education sector can play a role in developing new economic activities. The creation of platforms for educational services opens up considerable potential for the export of services, in line with the needs of regional and international markets.

- A social challenge, as an over-rapid expansion of the private sector could heighten inequalities in access to higher education and to the most sought after jobs. When credit markets or a wider system of scholarships and grants for students from disadvantaged social backgrounds are unavailable, the risk of inequity is certainly very high and many students will be unable to afford private university tuition fees. This may give rise to a fragmentation of the education system and the reproduction of social inequalities.

Moreover, at a time when geopolitical balances in the Mediterranean are being reshaped, higher education crystallises cultural issues of prime importance. The United States, France and, more recently, the Gulf States have engaged in a struggle for influence over the region's elites by funding educational supply and demand. This helps to foster competition between institutions, further the introduction of international standards and restructure programmes of excellence. At the same time, regulation through the global market alone would clearly run the risk of setting back public education policies.

Purpose of the study

Based on a comparative reading of experiences in Egypt, Lebanon and Tunisia, this study aims to gain insights into the conditions under which private higher education is emerging and developing. More generally, by identifying the points on which national pathways converge and diverge, it also seeks to open up thinking on the (financial) levers of higher education reform.

In terms of methodology, this study draws on a collection of sectoral (and macroeconomic) field data as well as interviews with the main public and private actors in higher education, the banking sector and cooperation agencies. The approach was to identify stylised facts on the main dynamics operative in higher education in the socioeconomic context of the countries studied. These facts were used to underpin the question of how higher education is financed, on both the demand and supply sides.

Part 1 proposes a synthetic and comparative diagnosis of the accessibility to higher education and its performance in Egypt, Lebanon and Tunisia, highlighting the conditions required for private higher education to emerge, as well as the financing constraints of higher education supply and demand.

Part 2 offers various insights into the conditions necessary for developing and financing private higher education and, more generally, opens up various lines of thinking on the drivers of higher education reform.

This report draws on two reviews of the theoretical literature: the first (Part 3) examines the returns to education in middle-income countries (J. Bourdon, L. Bydanova and J.-F. Giret, *Institut de recherche sur l'éducation* [IREDU]), while the second (Part 4) addresses the different modes of financing higher education (V. Duchatelle, M. Gurgand and A. Lorenceau, Paris School of Economics). These two contributions shed a broader light on the linkage between growth and higher education.

Part 1

Egypt, Lebanon and Tunisia: Higher Education under Pressure

Thomas MELONIO and Mihoub MEZOUAGHI

Significant advances have been made over the past decades regarding access to higher education in the countries of the South and East Mediterranean region. Yet, these countries have also experienced a decoupling between the human capital accumulation and economic growth cycles, which may be usefully analysed in this chapter with respect to the conditions of access to higher education and the integration of graduates into the labour market.

The demographic transition underway in the region – with each country moving at its own pace, yet sharing similar overall trends – is leading to profound changes in the population age-structure. This is characterised by a sharp drop in the region’s fertility rate but also, and above all, by a sharp growth in the proportion of 15 to 25-year-olds. These trends have two major socioeconomic implications: *i)* they create considerable tensions in the higher education system; and *ii)* they lead to a structural surplus of labour as huge flows of new graduates enter the labour market.

Most countries in the region are facing a massification in Higher education. This trend is accompanied by a decline in the quality of university instruction, and correspondingly in the quality of degrees, and by a worsening situation for the integration of graduates in the labour market. In many countries, almost half the graduates are still without employment one year after graduation.

This part of the report aims to identify the main constraints weighing on higher education and to analyse the conditions for the emergence and funding of private higher education. Based on a comparative approach, this means more specifically highlighting the points of convergence and divergence between the development

paths of private higher education in Egypt, ^[2] Lebanon and Tunisia, as the experiences of these countries are largely symptomatic of the challenges facing higher education across the whole Mediterranean region.

Lebanon, however, clearly stands out from the other two countries. Certainly, the importance of its private education sector is concomitant with the country's leaning towards a market-based economy and its confessional diversity, which underlie the financial and cultural selectivity of private education. On top of this, the internationalisation of Lebanese universities has enhanced their attractiveness at the regional level and also facilitated the international mobility of their graduates (especially in the Gulf States) against a backdrop of political instability. In Egypt and Tunisia, the legacy of an interventionist development model has guaranteed broader-based access to university and free tuition. Although at first sight, these countries are less prey to the problem of inequity, they are facing a greater challenge with respect to the rigidity of instruction – which is poorly tailored to the needs of the productive sector – and deterioration in the quality of degrees. Over the last few years, Egypt has come out in favour of the liberalisation of higher education, whereas Tunisia is giving priority to consolidating its state-funded universities.

In this part, the report will raise four overarching questions: To what extent do these demographic changes introduce a major structural constraint? How can higher education performance be assessed in terms of access to university and graduate entry into the workforce? What are the main rationales shaping the emergence of private higher education? What are the modes (and constraints) of financing the supply and demand of higher education?

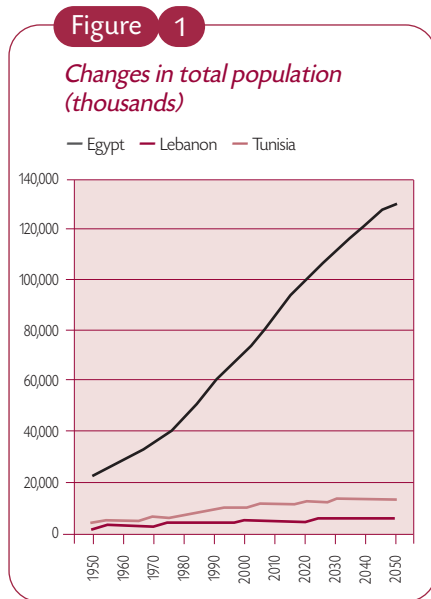
1.1. Higher education under demographic pressure

1.1.1. The imbalances of demographic transition

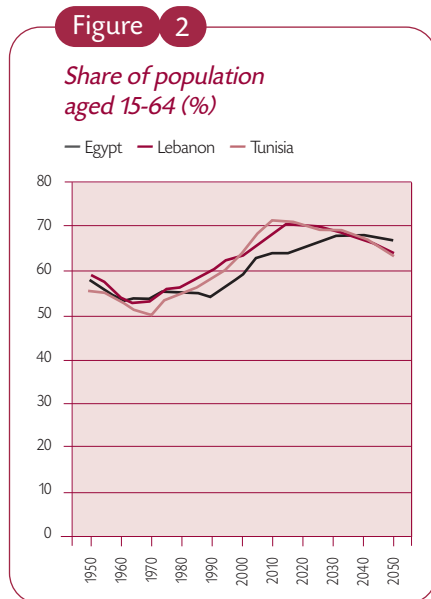
While most countries in the South and East Mediterranean region are approaching the end of their demographic transition, changes in the population age-structure are profoundly altering their socioeconomic balances. Compared to Tunisia and Lebanon, Egypt's demographic transition is moving at a slower pace given the size of its population and a later decline in fertility.

[2] We will base our analysis on collected data (carried out by P. MAALOUF, IREDU consultant) and interviews with public/private actors conducted during AFD-led missions in each of the three countries. However, due to the scarcity and incompleteness of the statistical data, these must be analysed with caution.

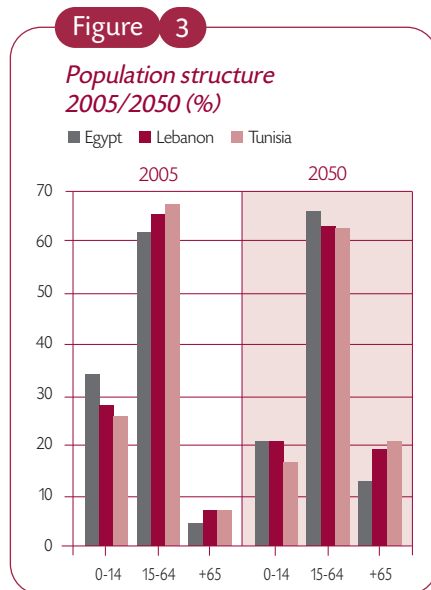
Based on United Nations projections, Figures 1 to 4 illustrate the long-term demographic trends:



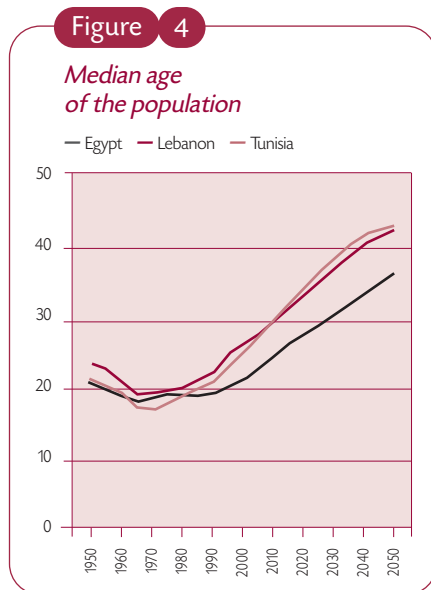
Source: United Nations data (2008 revision).



Source: United Nations data (2008 revision).



Source: United Nations data (2008 revision).



Source: United Nations data (2008 revision).

- *A slowdown in the population growth rate*, mainly due to the combined effect of lower fertility, higher educational attainment for women, family planning policy, changing patterns of family behaviour, a decline in real incomes and high levels of out-migration. This slowdown is less sustained in Egypt,^[3] where the population growth rate dropped from 2.7 to 1.8 per cent between 1980 and 2008 – as compared to 0.5 to 1.2 per cent in Lebanon^[4] and 2.6 to 0.9 per cent in Tunisia.
- *The sustained growth of the working-age population* as of the early 1960s. This growth is above all due to the lagged and combined effect of high fertility rates between the 1960s and the 1980s and the continuous rise of the female participation rate.^[5] The share of the 15-64 age group will continue to be preponderant until 2050. It should, however, begin to decrease in volume from 2015-2020 in Tunisia and Lebanon, and from 2040 in Egypt.
- *A structural predominance of the young population*: In 2005, the share of the under-25 age group represented 21 per cent in Tunisia, 22 per cent in Egypt and 18.5 per cent in Lebanon. In Egypt, the cohort aged 15-29 years, which represented 27 per cent of the total population in 1988, rose to almost 37 per cent in 2007 (i.e. up from 13 to 27 million persons). Moreover, the median age, which over the last four decades has hovered around 20 years, should reach 35 years in Egypt and over 40 years in Tunisia and Lebanon in 2050.
- *A modification of population age-structures*: These are tending to shift from a historical pyramid form to a population bulge that reflects the relative decrease in the under-15 age group. At the same time, these countries will be more affected by population ageing, with a substantial increase in the proportion of the over-64 age group by 2050.

These demographic trends have two significant economic and social implications: *i*) a growing pressure on social services (housing, health, education), already weakened since the 1980s by structural adjustment policies and, more recently, by policies involving budget stringency measures (or public expenditure rationalisation). These demographic pressures will tend to worsen the structural, institutional and organisational failings of the social sectors, causing their quality to deteriorate; and *ii*) the

[3] Between 2005 and 2050, total population should increase by 67 per cent in Egypt (rising from 77 to 129 million inhabitants), by 27 per cent in Tunisia (from 10 to 12.7 million inhabitants) and by 25 per cent in Lebanon (from 4 to 5 million inhabitants).

[4] What these data show is a growth rate between two points in time (and two different political contexts) rather than a trend. The successive conflict situations and the deficiencies of the population censuses limit the quality and reliability of the data on Lebanon (the most recent official censuses date back to 1932 and 1970). The visible trend is also one of a slowdown in population growth.

[5] The participation rate is defined as the ratio between the total labour force (employed and unemployed) and the total population.

more difficult conditions for entry into the labour market, and increasingly so, given that the working population is growing at a faster pace than the employment rate. Egypt and Tunisia are recording the mass arrival of newcomers into the labour market, which is equivalent each year to nearly 1 per cent of the total population. This flow should remain steady over the next decade.

1.1.2. *The high surplus in the labour market creates a high level of youth unemployment*

This divergence between labour force and employment growth rates has given rise to a surplus supply of labour on the job market.

An analysis of the labour force structure offers some insights into the demo-economic imbalance (Tables 1 and 2). In the Mediterranean countries, and particularly in the three countries studied, the employed labour force has been increasing over recent years in an environment of buoyant growth, but remains characterised by disparities with regard to gender, place of residence, age and educational attainment.^[6] Despite gaps in the statistics and the varying definitions of the workforce count (which restricts data comparability),^[7] four major characteristics emerge:^[8]

- *A male-dominated employed labour force:* Whereas the total population is balanced overall, the female employment rate is substantially lower than that for males. In many MENA countries, the female unemployment rate, which is nearly twice that for males, is increasing as their participation rate rises, which highlights women's high degree of vulnerability. Female entry into the labour market is limited as much by cultural factors (low access to certain occupations, social or family pressures) as by economic factors (job insecurity, informal employment), which explains the volatility of the labour participation rate observed over the last twenty years (ILO, 2004; 2008). In Egypt, where the gaps are the widest, the female participation rate in 2007 was 16 per cent compared to more than 48 per cent for men, whereas the

[6] For further details, see GIRET, J.-F. and P. MAALOUF (2009), *Rapport sur les systèmes d'enseignement supérieur en Tunisie, au Liban et en Égypte sur la base d'une grille d'indicateurs*, IREDU/AFD, Paris. Later in the paper, we will refer to this document as the "IREDU/AFD report".

[7] According to the *Institut national de la statistique* (National Statistics Institute [INSI]), the Tunisian labour force is "constituée par les personnes d'âge actif (15 ans et plus) qui sont occupées ou en chômage au cours d'une semaine de référence". ["composed of persons of working age (aged 15 or over) that are employed or unemployed during a reference week"]. In addition to the employed working population and job seekers, it also includes secondary and university students. In Egypt, CAPMAS (Central Agency for Public Mobilisation and Statistics) has counted women at home in informal employment as part of the labour force.

[8] The data presented in this report on the labour force (and employment) are mainly drawn from the following sources. For Lebanon: the household survey (2004), the *Administration Centrale des Statistiques* (Central Administration of Statistics - ACS) and the *Observatoire Universitaire de la Réalité Socio-Économique* (University Observatory of Socio-economic Reality - OURSE); for Tunisia: the INS and the employment survey (2007); and for Egypt: CAPMAS.

unemployment rate was 17.4 and 5.9 per cent respectively. In Lebanon and Tunisia, inequalities are tending to narrow, with an unemployment rate of 12 per cent for women and 7 per cent for men^[9] in the first case and 18 and 13 per cent respectively in the second.

- *The Spatial polarisation of the labour force and mass unemployment in urban areas:* Spatial disparities arise as a result of urban dynamics (metropolisation, rural migration) and a polarisation of the productive fabric (and therefore employment basins). Thus, Tunis and the Centre-East region of Tunisia account for almost half of the total labour force. In Lebanon, the participation rate in the Beirut Governorate stood at 51 per cent in 2004 compared to 37 per cent in the Bekaa Governorate. In all three countries, unemployment is higher in urban zones than in rural areas. In Egypt, this rate was 11.7 and 7 per cent respectively – with inequalities also observed in Tunisia and Lebanon. Even so, this observation needs nuancing given that the degree and pace of underemployment in rural areas are creating situations of latent unemployment.

- *An increasingly young and literate labour force:* In Lebanon, the 25-29 age group is the largest, representing close to 16 per cent of employed workers in 2007. In Egypt, the 15-24 age group made up 29 per cent of the employed labour force in 2006. Although the share of illiterates is still quite substantial, notably in Egypt^[10] (though now decreasing), the proportion of graduates from secondary and higher education institutions is rising sharply. In Lebanon, higher education graduates represented over 20 per cent of the employed in 2004 and almost 24 per cent in 2007 – with more graduate women than men in the labour force, since young male graduates are more likely to emigrate (*infra*). In Egypt, the labour market is largely dominated by technical secondary graduates (who make up almost 30 per cent of the employed labour force) and is experiencing a continuing rise in the number of higher education graduates (almost 15 per cent of those in work). This population is also bearing the brunt of unemployment. In Tunisia, young people aged between 20 and 29 represented over 57 per cent of the unemployed in 2007. Unemployment affects almost 20 per cent of the 15-24 age group in Lebanon and 73 per cent of the 20-29 age group in Egypt. The graduate unemployment rate is estimated at 11 per cent in Lebanon, nearly 14 per cent in Tunisia, and over 20 per cent in Egypt in 2007.

[9] By way of comparison, the disparities are weak in OECD countries: the unemployment rate bordered on 8.7 per cent on average in the countries of the European Union and 5.1 per cent in the United States by 2006, and 7.1 and 5.1 per cent respectively for men compared to 8.8 and 5 per cent for women (Eurostat).

[10] One third of the employed labour force is illiterate.

• *A sectoral transition of the labour force:* The public sector remains a major employer in Tunisia, and even more so in Egypt (where it absorbs nearly 29 per cent of employed persons). However, in both countries, public sector employment has been substantially downsized over the last ten years. Conversely, in Lebanon, more than half (58 per cent) of the employed labour force works in the private sector as against 16 per cent in the public sector,^[11] which has not played a similar redistributive role.

Table 1 *Labour force characteristics* ^[12]

	Egypt	Lebanon	Tunisia
Urbanisation rate (% , 2005)	42.8	86.6	65.3
Population (thousands, 2005)	77,154	4,082	9,878
Population of 15-64 age group (% , 2005)	62.1 ^[13]	65.4	67.6
Distribution of the employed labour force by gender (%)			
Male	80	67	73
Female	20	33	27
Distribution of the employed labour force by sector (%)			
Public	29	16	23*
Private (including the informal sector)	71	84	77*

* 1997 data (source: Direction générale de la fonction publique et des entreprises publiques.)
Source: UNDP (2007/2008), ILO, World Bank, CAPMAS, INS, ACS.

In the economic literature, this demographic equation, which is underpinned by a structural surplus of (qualified) labour and substantially reduces the age dependency ratio,^[14] is generally presented as a “windfall” that speeds up the accumulation of production factors, and increasingly so the more educated the population. Yet, at the same time, it also exerts strong pressures on the labour market when the number of jobs created is lower than the number of new entrants.

[11] The informal sector absorbs around one quarter of the employed labour force.

[12] These data are not totally comparable owing to the specific methodologies used.

[13] In 2007, Egypt had 3 million employed workers (i.e. 14 per cent of the employed workforce) who were not being paid a salary.

[14] Defined as the ratio between the retired population and the labour force.

In the 1960s and 1970s, the public sector was the main job provider in the Mediterranean region for a fast expanding urban population. The growth of a manufacturing industry served as a second-breath source of job creation. At the time, the region's economies were by and large centrally planned and the State remained the main component of the demand for labour. From the 1980s onwards, the post-independence development models began to run out of steam, leading to the reformulation of economic policies, in line with economic liberalisation, the restoration of macroeconomic equilibria and the disengagement of the State. These structural adjustment policies implied the privatisation of state-owned enterprises and the promotion of private investment, both deemed to be primary drivers of economic growth. Although Egypt took market-oriented policies on board later than Tunisia – for the most part during the 1990s (and more openly as of 2004) – the growth paths of these two countries are not dissimilar.

In the area of employment, this translated into a deep-cutting transformation of the labour market: on the one hand, the demand for labour tended towards employment profiles in the productive sector and, on the other hand, the State was forced to drastically streamline the public-sector workforce (much more radically in Egypt than in Tunisia). This transformation came under pressure, however, when the labour demand underwent a structural shift and the labour supply failed to adapt to this new situation. This incoherence produced high tensions on the labour market and, given the relatively weak economic growth during the 1990s, resulted in crowding-out effects and different forms of job insecurity (unemployment, underemployment, holding multiple jobs, informal employment). This brought to light a structural mismatch between the demand for employment and labour market needs (Agenor and El Aynaoui, 2003).

In the Mediterranean countries, unemployment primarily impacts on new entrants to the labour market and, increasingly, on individuals with high educational attainment. These evolutions are accompanied by a rise in long-term unemployment,^[15] which above all affects higher education graduates, whereas unemployment of less than one year is more prevalent among non-graduates. This stems not only from a disconnection between education and employment, but also from the existence of high barriers for entering the labour market.

This new-entrant unemployment (“inclusion” unemployment) is unlike the unemployment found in developed countries, which could be dubbed “exclusion” unemployment (resulting mainly from redundancies or non-renewal of fixed-term contracts). Moreover,

[15] The probability that a person can re-find work decreases with the duration of his or her unemployment. Periods of economic recovery often go hand in hand with a decline in the unemployment rate, and at the same time an increase in long-term unemployment. The explanation for this is employers' preference for the short-term unemployed, as human capital and productivity are considered to be less impaired by the period of unemployment.

youth unemployment is on the rise even though the unemployment rate for the overall labour force has declined in recent years. Official unemployment data rarely mirror reality (the unemployment rate was estimated to be 9 per cent in both Egypt and Lebanon and 14 per cent in Tunisia in 2007). Many economists emphasise the high levels of informal employment, as well as the shortcomings of official measurement methods to estimate the real unemployment rate, which is doubtless closer to the 15-20 per cent range.^[16] Furthermore, the size of the informal sector (estimated at between 35 and 50 per cent in the Mediterranean region according to the ILO) is not taken into account, despite the fact that the volume of informal employment represented 57 per cent in Egypt in 1998, and 61 per cent in 2006 (Assaad, 2007).^[17]

Table 2 *Unemployment rate, 2007 (%)*

	Egypt	Lebanon	Tunisia
Total unemployment rate (%)	9	9.2	14 (15.7)
Female	17.4 (27.6) ^[18]	10	18 (15.9)
Male	5.9 (7)	9	13 (15.1)

The figures in italics and brackets are for the year 2000.

Source: ILO, CAMPAS, INS, ACS, OURSE.^[19]

The governments are responding to this employment situation with active policies designed to adapt labour supply by promoting vocational training, introducing incentives and subsidies for school-to-work transition and encouraging self-employment initiatives.

More fundamentally, and beyond the impact of these policies, the question now posed is the sustainability of the current growth model. The promotion of a labour-intensive manufacturing industry and the adoption of macroeconomic policies conducive to wage flexibility have created productive specialisations that rely on static comparative advantages (made possible by an abundant supply of low-skilled workers). Yet, without any real change in its growth path during the 1990s and 2000s, the Tunisian economy has exposed itself to an industrial lock-in (through dependency on productive activities with low- or average-growth potential).

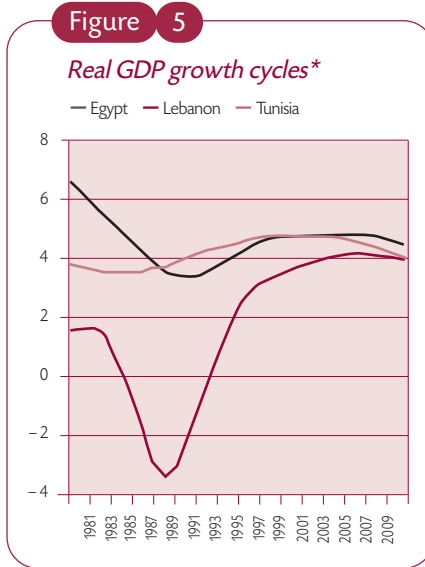
[16] See the ILO and World Bank reports.

[17] These figures can only be taken as orders of magnitude.

[18] The application of a new methodology by CAMPAS in 2004, which integrated women working at home (involving a large number of women in rural areas) into the employed labour force, explains the sharp drop in female unemployment.

[19] The OURSE survey was conducted during the last quarter of 2007 and based on 8,061 Lebanese households (representing 33,958 individuals) across the whole country. Supplementary in-depth data have also been collected from around 10,000 young people aged from 18 to 35.

In a setting marked by high demographic pressures and deepening trade liberalisation, any shift in the growth model needs to meet **two imperatives**: increasingly absorb a large surplus labour supply over the coming decades (**increase the level of employment**) and raise the qualification level (**diversify employment**).



* With a Hodrick-Prescott filter.
Source: IMF data (WEO, April 2009), AFD computations.

In the three countries studied – even though each has distinctive economic drivers – the substantial downtrend in economic growth during the 1980s was followed by a trend towards an annual 4 per cent growth rate at the end of the 1990s (Figure 5). This rhythm is nonetheless insufficient if the high demand for employment expected over the next fifteen years is to be met.

1.2. Higher education performance: equity and graduate labour market outcomes

1.2.1. Conditions of access to higher education

1.2.1.1. The massification of higher education

Population trends and deteriorating opportunities for entry into the labour market place a particularly heavy burden on higher education structures. The population of university students has increased considerably, especially in countries where access to higher education is guaranteed by the State, as is the case in Tunisia and Egypt.

In Tunisia, the student population rose from about 50,000 in 1987 to 350,000 in 2007, which amounts to a sevenfold increase in a space of twenty years. This trend is due to continue until 2016, when the Tunisian Ministry for Higher Education (MoHE) forecasts that the student population will peak at about 500,000. A drop in student numbers can only be foreseen in the medium term (from eight to ten years if the inertia effect is factored in). Moreover, the annual number of graduates, today estimated at nearly 60,000, is set to reach 100,000 by 2016.

A similar trend can be seen in Egypt (MoHE data). In 2007, Egypt counted almost 1.9 million students^[20] (against only 142,000 in 1966, representing a fourteen-fold increase over forty years). In view of the demographic trends, enrolments should peak some time later.

Further upstream, considerable progress has been made in the primary and secondary cycles, which now guarantees a broader access to school enrolment for the under-15 age group. In all three countries, enrolment rates are now bordering on 100 per cent in primary education and 80 per cent in secondary education (Table 3). The population is by and large educated, even though illiteracy remains high in Egypt due to an enrolment deficit that has built up progressively (mainly for women in rural and periurban areas).

Table 3 *Educational attainment*

	Egypt	Lebanon	Tunisia
Literacy rate, 2005-2007 (%)			
Male	75	93	86
Female	58	86	69
Gross enrolment rate, 2007 (%)			
Primary	105	95	108
Secondary	82*	81	85
Tertiary	35	52	31

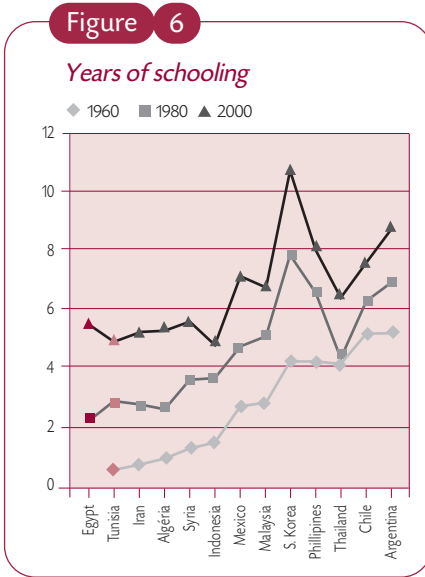
* 2005 (UNDP).

Source: World Bank, *World Development Indicators (WDI) 2009*.

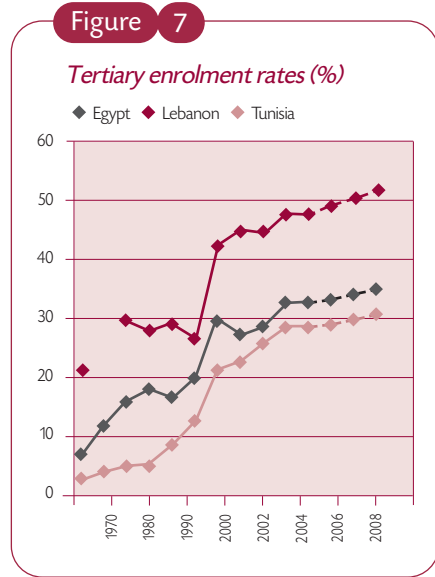
Nevertheless, if length of schooling is included as a proxy for human capital accumulation, the average achievements of MENA countries are higher than those for countries in Sub-Saharan Africa and South Asia, but lower than those in Latin America and East Asia and the Pacific (Figure 6).

[20] To which should be added 650,000 students in post-secondary technical institutes.

Two recent tendencies should be mentioned: the high demand for technical secondary education (in Egypt, this represents nearly 40 per cent of the 18-23 age group, according to CAPMAS data) and an accelerating demand for higher education (Figure 7).



Source: Barro and Lee (2000).



Note: Data for 2005 and 2006 are estimates.
Source: WDI 2007 and 2009.

1.2.1.2. Inequality of access and equity

Beyond this considerably broadened access to higher education and despite narrowing (or even inverted) gender disparities, social and geographic discrimination is becoming more pronounced.

- *The reduction of gender inequalities*

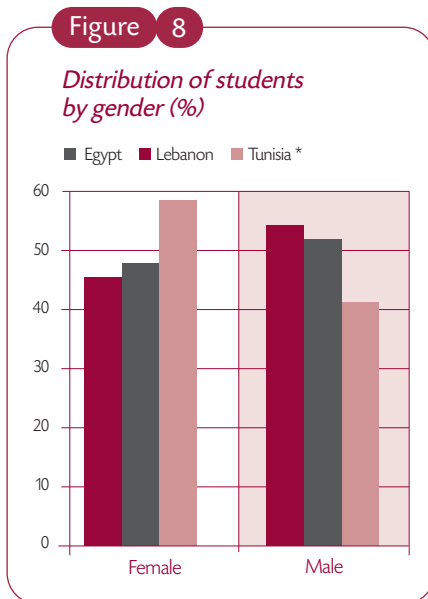
Women’s presence at university has sharply accelerated over recent decades; women no longer experience unequal conditions of access relative to men and in certain cases account for more than half of university enrolments.

In Tunisia, women represented 59 per cent of the student population in 2007 (Ministry of Higher Education, Scientific Research and Technology – MHESRT): in twenty years, their number has risen sixteen-fold. In Lebanon and Egypt, these rates are 46 and 49 per cent respectively (Figure 8) and, although lower than Tunisian rates, are nonetheless close to gender parity. This difference can

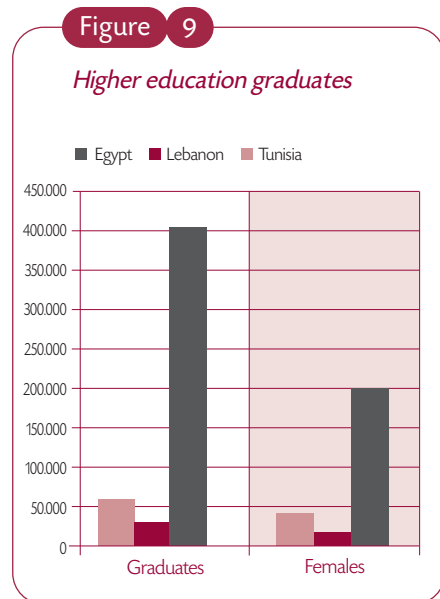
be explained by the abandonment of schooling at the end of the secondary cycle (notably in culturally conservative families) and by family preferences for funding male members in higher-education studies at private universities. Yet, a distinction must be drawn with respect to the strong disparities observed in the fields of study (more women than men enrol in the humanities and social sciences programmes) and the level of university studies (there are almost as many women as men in the first- and second-degree programmes, but men enrol more than women in long study paths).

Graduation rates by gender confirm this “feminisation” of universities. In 2007, women represented almost 61 per cent of university graduates (all programmes combined) in Tunisia, 54 per cent in Lebanon and 49 per cent in Egypt (Figure 9).

It should be noted, however, that discriminatory access may emerge with the growth of a private university system (which in many cases produces a crowding-out effect on women from socially disadvantaged families) and with the persistence of societal representations of women that cause them to be more rarely steered into technical fields of study. In both instances, women’s employability is affected.



* For the public sector only.
Source: MHESRT, CAPMAS, ACS.



Source: MHESRT, CAPMAS, ACS.

- *A deepening geographic discrimination*

The development of university infrastructures has been carried out on a top priority basis in large cities, and increasingly followed a rationale of extending the admission capacity of existing universities. In all three countries and excluding private universities (generally small-sized), few new public universities have been created in recent years in anticipation of demographic trends (notably in the interior regions). As a result, the spatial polarisation of universities has been compounded with a saturation of existing (mainly public) infrastructures that strongly impacts on the quality of teaching.

The concentration of higher education infrastructures in the metropolises (capitals and large cities) implies a high degree of student mobility, which increases the cost of schooling as accommodation also has to be paid for. In Tunisia and Egypt, the authorities are concerned that public universities should have more extensive coverage nationwide: in Tunisia, although 21 of the 31 universities are located in Tunis, this is the case for only 38 of the 190 higher-education technical/vocational training institutes. In recent years, the number of higher education institutions located outside Tunis has been increasing. In both countries, programme offerings have been substantially expanded nationwide.^[21]

Yet, the universities are of unequal size. In Egypt, Al-Azhar University services almost a quarter of the higher education demand. Aside from this highly singular case, three universities (Cairo, Ain Shams and Alexandria) take in almost one third of the students (i.e. over 600,000 people). If Al-Azhar University is added, these four institutions meet almost half of the higher education demand (Figure 10). The same concentration can be observed in Lebanon: apart from the Lebanese University (the only public university), which takes in almost half of the students (in several campuses), five private universities service more than a quarter of the demand (Figure 11). In Tunisia, 42 per cent of students are enrolled in the capital's public universities.

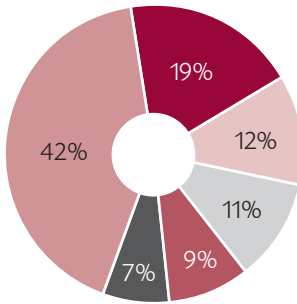
These disparities tend to give a territorial dimension to the provision of higher education programmes. This is clearly the case for technical programmes of excellence and new programmes, which are concentrated in certain towns/regions. However, this offering is inadequately matched with the spatial organisation of industry. The political will of the Tunisian authorities to foster the emergence of competitive clusters clearly integrates efforts to dovetail (at the local level) the education system and the location of productive activities.

[21] See the IREDU/AFD report (2009) for more details on the distribution of students by university, course and region.

Figure 10

Distribution of students in Egyptian public universities

- Others
- Al-Azhar University
- Cairo University
- Ain Shams University
- Alexandria University
- El-Mansoura University

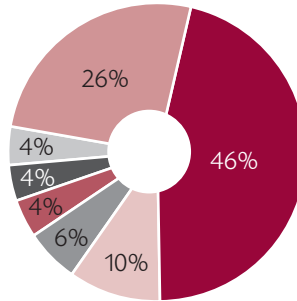


Source: CAPMAS

Figure 11

Distribution of students in Lebanese public universities

- Others
- Lebanese University
- Beirut Arab University
- Université Saint-Joseph
- American University of Beirut
- Université Saint-Esprit
- Lebanese International University



Source: ACS

Uneven demographic transition in the different governorates may well herald more enduring tensions in some regions. In the case of Tunisia, the Tunis and Ariana Governorates will see the size of the generations enrolled in primary and secondary education diminish over the next ten years before levelling off. Should any saturation of higher education occur, this will not therefore be fuelled by population growth in the region, but by the eventuality of a very high number of secondary students passing their Baccalaureate and continuing into higher education. However, students are mobile within the limits set by the educational guidance system. If this were to evolve towards the opening up of more university places in the Tunis region, for example, the universities there could also experience continuing growth of their student populations. In the urban governorates (Bizerte, Sousse, Sfax, Ben Arous, La Manouba, Nabeul, Monastir), student populations will peak in seven to eight years' time (at levels 5 to 10 per cent higher than present-day figures), before a sharp downturn (of about 20 per cent). In the less urbanised governorates, but those nonetheless located on the coast or near large agglomerations (Zaghouan, Beja, Siliana, Gabes, Medenine, Gafsa, Kébili), a peak of 10-15 per cent above the current level will occur in about ten years' time. In the rest of the country (Jendouba, Le Kef, Mahdia, Kairouan, Kasserine, Sidi Bouzid, Tataouine, Tozeur), it will take another fifteen years before there is a decline in the size of cohorts.

In other words, official estimates (MHESRT) of an increase in the student population over the 2008-2016 period reflect a growth in the central and southern regions of the country rather than in the large coastal agglomerations. Guidance on where students should enrol and, more importantly, each university's admission quota will thus have decisive consequences. If the decision is taken to keep students as far as possible in their home region, certain governorates will experience high pressures on their universities. If, however, it is decided to spread the growing student population across the entire national territory, then a lower decline of student numbers will be recorded in the urban zones, together with higher pressures in the rest of the country. Whichever pattern is chosen, pressure points will appear. Those governorates most likely to take in a higher number of students than students who reside locally are Tunis, Ariana, Ben Arous, Sfax and Monastir, or even Sousse and Gabes.

Maintaining a balance between spatial planning and equity is a difficult issue. In Egypt, directives for mandatory assignment of teachers to regional universities were enforced in 2006. The application of a university-zone map is also indicative of the authorities' concern to avoid accentuating regional imbalances. Thus, secondary school graduates are allocated university places primarily on the basis of their place of residence. Mobility between universities is also discouraged. This rigidity can lead to an inefficient distribution of students across universities and across programmes and, consequently, to inequalities in teacher-student ratios and quality. However, although the university-zone map is strictly enforced, it is not ineluctable, as enrolment in a private university means this constraint can be sidestepped.

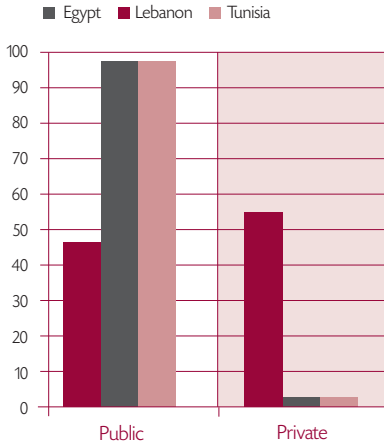
Finally, the expansion of private universities constitutes a factor that heightens inequalities, as it reinforces both the spatial concentration of higher education provision and geographic discrimination. Yet, this also raises the prior question of how equity is to be redefined in a system that combines both public and private education.

- *Increasing social selectivity*

This question is posed differently in each of the three countries. Higher education provision in Egypt and Tunisia is mainly delivered by the public sector, and in Lebanon by both the public and private sectors. In 2007, more than half of the students in Lebanon attended private universities, compared with 2 per cent in Tunisia and very slightly more in Egypt (Figure 12).

Figure 12

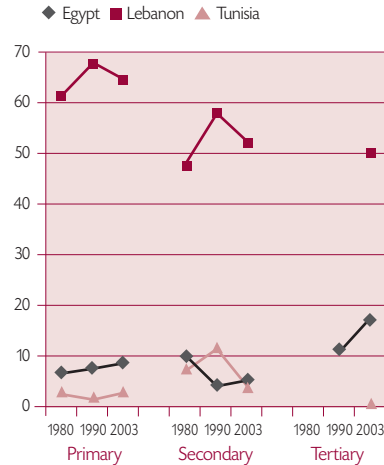
Distribution of students in public and private universities (%)



Source: MHESRT, ACS, CAPMAS.

Figure 13

Share of students in private institutions by cycle (%)^[22]



Source: Unesco; World Bank, 2008.

The question of social discrimination emerges in different ways:

- The growth of private universities introduces financial selectivity if there is no access to credit markets. When the teaching quality in private universities is recognised, this selectivity sends a signal to the labour market. This is the case in Lebanon and, to a lesser degree, in Egypt.
- The choice of programme is to a large extent determined by a form of selectivity already operative at the primary level (and less obviously in secondary schooling). Effectively, when private primary/secondary education is of a higher quality than public education, this may encourage individuals to enrol far in advance in private schools. Moreover, this may also bias merit-based selection for admission into programmes of excellence in public universities (preparatory classes, *grandes écoles*, selective programmes in Egyptian or Lebanese universities).
- Social selectivity can also be indirectly introduced into public education despite the fact that this is virtually free. In the case of “elite programmes” in public institutions, where admission depends on a merit-based logic, access conditions may prove inequitable. Thus, for pilot secondary schools that almost systematically open the door

[22] Here, the higher enrolment rate in Egypt includes the students enrolled in vocational training institutions.

to (national or international) programmes of excellence, the admission criteria and academic level most often mean that a student needs private tutoring, which is exorbitantly priced (and thus unaffordable for disadvantaged social classes).

Social selectivity, when present as a factor for admission into higher education (and, upstream, primary and secondary education), can thus cause a “fragmentation” of the education system. Two education systems seemingly coexist (somewhat hermetically), producing two categories of graduates and resulting in differentiated access to the labour market: a first category of highly employable graduates and a second category of graduates with a poor level of employability. In the light of this, authorities such as universities (state-funded and private) are developing procedures designed to mitigate the perverse impacts of social selectivity (*infra*).

1.2.2. *The quality and rate of return to degrees: the problem of graduate unemployment*

Here, we are not concerned with an intrinsic assessment of the quality of an instructional system^[23], as such a highly complex exercise would call for a study in its own right. We can, however, identify three trends likely to have a significant impact on the quality and rate of returns to degrees: *i*) a higher education supply dominated by social sciences; *ii*) a decline in teacher-student ratios and the quality of faculty; and *iii*) the rise of graduate unemployment.

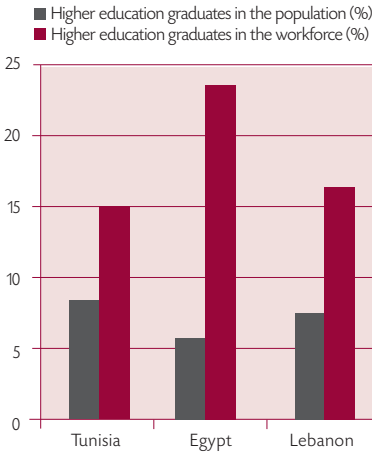
1.2.2.1. *A supply of graduates dominated by the social sciences (and basic sciences)*

A university degree is no longer a rare commodity. Higher education graduates account for a large fraction of the workforce: almost 15 per cent in Tunisia and Lebanon and roughly 23 per cent in Egypt (Figure 14). Their greater preponderance in the total population in Tunisia and Lebanon relative to Egypt can be explained by the latter’s demographic structure (the Egyptian population being proportionally younger). In absolute terms, Egypt trains nearly 400,000 higher education graduates each year, as opposed to 60,000 in Tunisia and 25,000 in Lebanon. The number of graduates should substantially increase over the forthcoming years.

[23] Assessing the quality of degrees is to all extents and purposes a subjective matter. In absolute terms, it depends on the type of utility assessed (private or social) and the actual feasibility of measuring it. The assessment of teaching quality using evaluation tests for learning outcomes (for example the OECD’s PISA tests implemented for Tunisia and Egypt) is contestable. This is why – in addition to the basic criterion of labour market outcome dealt with in this section – we will give priority to a qualitative assessment that takes into account demand-side dynamics, the attractiveness of the instructional system and its degree of internationalisation (third section).

Figure 14

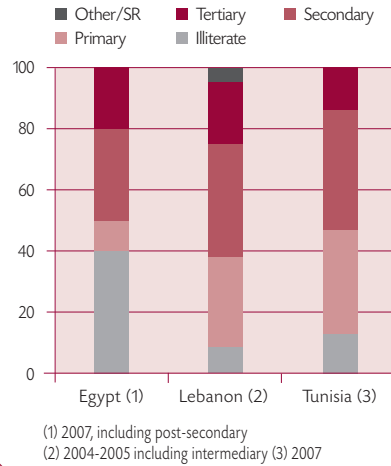
Share of graduates in the population (2007)



Source: MHESRT, MoHE, CAPMAS, ACS.

Figure 15

Employment rate by educational attainment



Source: MHESRT, MoHE, CAPMAS, ACS.

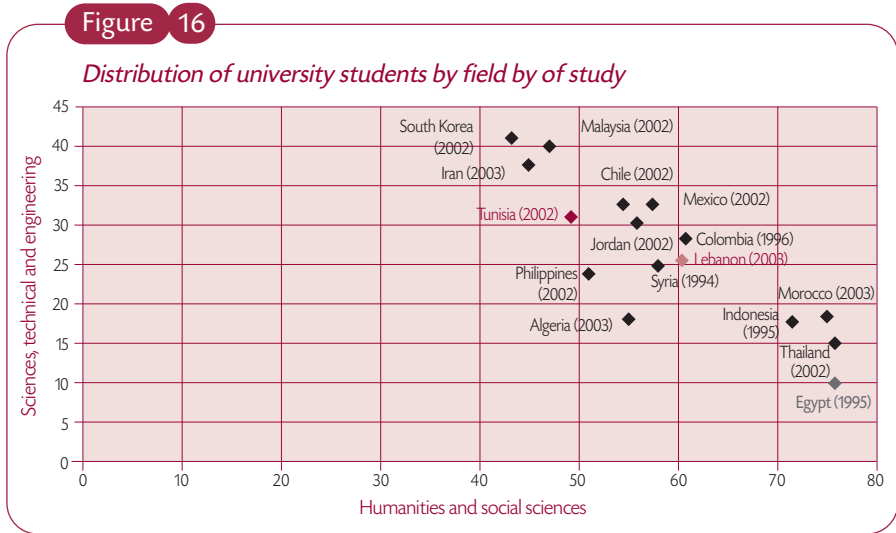
Data on the private rates of return to higher education degrees are still few and far between.^[24] World Bank estimates published in its report *The Road not Travelled: Education Reform in the Middle East and North Africa* (2008) are now outdated. For Egypt, the rate of return was evaluated at 8.8 per cent in the public sector and 7.3 per cent in the private sector in 1998 for male graduates (for women this rate was slightly higher, depending on whether the job was held in the public or private sector). Whilst rates of return to higher education are visibly in excess of returns to primary and secondary education, they tend to be higher in the public sector. The fact that the public service sector systematically places greater value on degrees indicates a specific characteristic (and, in this case, a dysfunctioning) of the labour market (*infra*).

The literature, however, concurs that these returns are relatively low in most MENA countries (compared to other middle-income countries). Two hypotheses can thus be posited: *i*) a weak signalling of degrees to the labour market; and *ii*) the poor quality of degrees. Concerning the first hypothesis, it should be added that the importance given by higher education graduates to holding a public sector job, particularly in Tunisia and Egypt, may skew private returns to education. At first glance, the formation

[24] See the IREDU contribution in the third part of this report.

of a stock of unemployed graduates explicitly raises the issue of an overproduction of graduates, inducing continuingly low private returns (through downward pressures on the salaries of qualified workers), or even a decrease in these returns when there is a rigidity in the demand for qualified employment.

Certainly, the question needs to be framed more in terms of fields of study. Figures 16 and 17 show the inefficient distribution of students and graduates by field of study, with an excess of students^[25] in the humanities and social sciences and, conversely, a shortfall in the technical sciences and engineering. The situation is extreme in Egypt, where social sciences graduates represent over 80 per cent of all higher education graduates. This distribution is also observed in Lebanon and Tunisia, but to a lesser extent.



Source: World Bank.

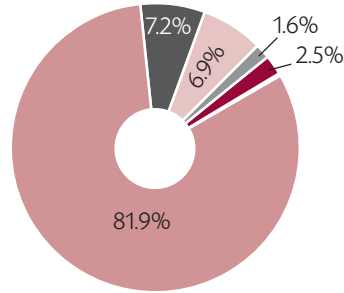
[25] The notion of “excess” is relative to the observed labour market demand. This raises the question of both sectoral growth and jobless growth.

Figure 17

Distribution of graduates by field of study in Egypt (2007)

Humanities
Medicine
Basic sciences

Engineering
Agriculture



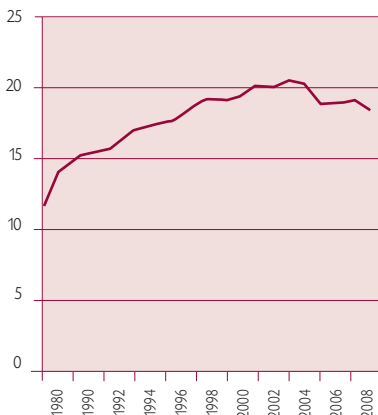
Source: CAPMAS.

1.2.2.2. Deterioration of the teacher-student ratio

Today the public sector offers ever-dwindling job prospects in both Tunisia and Egypt. The decline of administrative services raises the taboo issue of the balance between the size of the public sector (in terms of headcount) and its service quality. The question here is not so much one of the optimal number of civil servants as that of the government's capacity to formulate and implement a tailored education policy and deliver a quality education service.

Figure 18

Teacher-student ratio in Tunisia

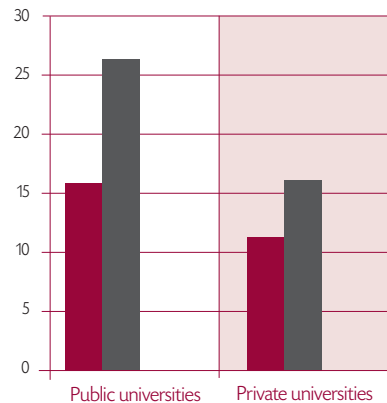


Source: M/HESRT.

Figure 19

Teacher-student ratio in Egypt and Lebanon (2007)

■ Egypt ■ Lebanon



Source: CAPMAS, MES, ACS.

In the 1990s, the teacher-student ratio in Tunisia deteriorated considerably but has again been improving since 2003. According to official data, the country had 18,608 teachers in 2007-2008. It should be noted that, to reach this figure, the Tunisian government has recruited large numbers of teachers, as the teacher headcount stood at only 3,775 persons in 1987. Yet, maintaining the current teacher-student ratio is an ongoing challenge given the uptrend in student numbers. This ratio had already fallen prey to the effects of a growing student population between 1987 and 2001, before stabilising and then improving slightly from 2001/2002 to reach about 19 students per teacher. This level is nonetheless relatively high compared with the most reputed universities in the region (10 at the *Université Saint-Joseph*, 12 at the American University in Cairo and 13 at the American University in Beirut). More generally, the teacher-student ratio averages 12 in Lebanon's private universities and 16 in private universities in Egypt (compared to 16 and 27 respectively in public universities) (Figure 19).

Moreover, the quality of the faculty is probably on the decline. In Tunisia, for example, it seems that the proportion of professors, senior lecturers and professors of medicine has decreased in favour of assistant teachers, other types of teachers and employed retirees. It can thus be assumed that the average professional experience of a teacher is declining, notably due to the sharp increase of the "other teachers" category, which mostly involves contract teachers. This tends to go hand in hand with the faculty's lesser command of language skills (not only French, but also literary Arabic). Obviously, the recruitment of contract teachers has helped to stabilise the teacher-student ratio and concurrently lower per-student expenditure from 2001/2002 onwards, but this is most likely to the detriment of the teaching quality. Finally, there has been a substantial rise in the number of the professors "who have reached the working-age limit" (60 years),^[26] which is impacting instructional potential, given the recognised quality of this generation of teachers. Some obtain an exemption allowing them to continue working for a further one or two years, but this retirement policy remains somewhat "selective" and is based on a discretionary procedure. In Lebanon, the appointment of professors at the Lebanese University was put on hold for several years due to the crisis situation, and this seems to have created an imbalance in the faculty age pyramid.

Given the salary levels for university teachers, many of them in all three countries spend little time on teaching and research and develop a parallel activity (consulting or private sector teaching). This also impacts negatively on the "effective" teacher-student ratio and the quality of teaching. As a result, students fall back on private

[26] A government bill envisages delaying the retirement age for teachers.

tutoring to ensure their academic success. The phenomenon of private tutoring, particularly in Egypt, affects all levels of education. A national survey of Egyptian households carried out in 2000 revealed the financial burden of private lessons for families (representing more than one-third of household education spending). In 2000, household expenditure on education stood at 3.6 per cent of GDP

1.2.2.3. The difficulties of university graduates' transition to work

In developed countries, the relationship between holding higher education qualifications and employment (and, to a lesser extent, wage levels) is generally positive. In the MENA countries (and, by extension, in many developing countries), this relationship is negative. The probability of finding employment is an inverse function of educational attainment. The results of many studies show that individuals with a low level of qualification are less exposed to the risk of unemployment than qualified individuals. In Egypt, over the period 1998-2006, the structure of unemployment with respect to educational attainment has gradually changed, indicating an accelerating rise in unemployment for technical secondary graduates and university graduates. The average unemployment rate of qualified individuals (secondary and higher education graduates) is estimated at 20 per cent, with the higher education graduates increasingly accepting jobs in the informal sector. Moreover, graduates choosing to take up employment in the formal sector often find themselves in jobs that require lower levels of qualification than those they possess. In both cases, graduates find themselves underemployed (Assaad, 2007).

A similar problem exists in Tunisia: despite a decrease in the overall unemployment rate between 2004 and 2007, graduate unemployment has risen. In 2008, the number of unemployed graduates most likely exceeded 100,000 (90,000 in 2007).

In Lebanon, the OURSE survey estimates that in 2007, 29 per cent of unemployed youth had completed university studies (while the *Administration Centrale de la Statistique* evaluated this rate at 21.2 per cent in 2004). According to the same data, technical secondary graduates represent 53 per cent of job seekers, and university graduates account for 33 per cent.

In Tunisia, the findings of a joint report by the Ministry of Employment and Professional Integration of Youth and the World Bank (2004) show that it is increasingly difficult for higher education graduates to enter the labour market. For the 2004 graduate cohort, the employment rate eighteen months after graduation is about 40 per cent (including state-assisted employment contracts), compared with 60 per cent who are either unemployed or economically inactive. The employment

rate only exceeds 50 per cent for engineering graduates, particularly those with technological specialisations. For almost all other fields of study, young graduates have difficulty in finding “proper” employment, even though active government policies costing some 1.5 per cent of the GDP are in place. The same survey shows that for those in employment, there are numerous instances of occupational downgrading or education-occupation mismatch. The rate of occupational downgrading is particularly high for university graduates with a Master’s degree (43 per cent) and senior technicians (35 per cent), and less pronounced for engineers, mostly agronomists (10 per cent). The educational mismatch rates,^[27] which are lower than the rates of occupational downgrading, again involve senior technicians (33 per cent) and graduates who hold a Master’s degree (15 per cent).

A similar evaluation, focused specifically on Tunisian agronomy engineers, established that 22 per cent of graduates are in wage employment, 12 per cent were following training, 5 per cent had created or were in the process of creating their own business and 61 per cent were still looking for a job (IDESA).^[28]

It is also useful to establish a linkage between this graduate unemployment and the conditions for graduates’ education-to-work transition. The failure of higher education to meet labour market needs would thus be juxtaposed with the intrinsic failings of the labour market.

1.2.3. The failure of the labour market

A summary review of the main labour market failures provides a first strand of explanations (microeconomic) for graduate unemployment (Aubourg, 2007).

1.2.3.1. High market segmentation limits the signalling function of degrees

Labour markets in the MENA countries are mostly characterised by the low social and spatial mobility of the workforce. This feature may be viewed as the outcome of a long experience of centrally planned economies – or, at the very least, interventionist economies. The structural impact of public sector employment on the labour market has helped to distort the signalling value of degrees to the market, and the growing “informalisation” of the economy has reinforced this bias.

[27] The education-occupation mismatch rate indicates the share of graduates employed in jobs bearing no relation to their specialisation or field of competences.

[28] Report by J. METGE, inspector for agricultural education in charge of the international co-operation MAP-DGER. Through the IDESA (*Insertion professionnelle des diplômés de l’enseignement supérieur agricole* in Tunisia) project, a Euro-Tunisian consortium carried out a survey in 2006/2007 on the education-to-work transition of graduates within the framework of the TEMPUS MEDA programme funded by the European Commission. The questionnaires were completed by 318 engineers and senior technicians from the five most recent graduate cohorts of three higher agricultural institutes in the northern region. These results, however, show a bias given that the sample used was not representative.

- *An inertia brought on by the duality of the labour market*

Public sector employment is deemed to be stable and relatively well-paid, whereas the private sector is seen as offering precarious and somewhat less well-paid jobs. This duality of the labour market still appears to influence the demand for employment, even though public sector employment has contracted due to structural adjustment policies and the subsequent workforce rationalisation in state-owned enterprises and public administrations.

The use of political will^[29] to structure labour markets has injected rigidities into the wage structure, modifying individuals' incentives and expectations (Dyer, 2005). Public sector wages are most often accompanied by other forms of remuneration (bonuses, housing...) and civil servant status not only opens up access to various privileges (price reductions for certain public services, access to subsidised loans), but also confers social recognition. The distortions induced by monetary and non-monetary compensation (Agenor, El Aynaoui, 2003) explain in part the transitory behaviour of young unemployed graduates,^[30] who prefer to have a temporary job in the informal sector while awaiting a government employment opportunity, rather than accept a lower-paid job in the private sector. These expectations explain the high demand for public sector jobs (a very large number of candidates sit civil service competitive exams), as well as the longer periods of unemployment.^[31] Some economists have also highlighted path dependency^[32] to explain this lag in adapting labour supply to demand.

Although the private sector has helped to create employment, it has not managed to absorb the flow of new entrants or the stock of unemployed workers. The structure of productive capital – dominated by family SMEs that generate few new jobs – may offer a first explanation. In Egypt, almost two-thirds of businesses employ less than ten workers and create either directly or indirectly a huge number of informal jobs (Assaad, 2007). Moreover, studies show that there is a correlation between the size of enterprises and the growth of informal employment.

[29] In Egypt, a law introduced by President Nasser in 1964 guaranteed every post-secondary graduate government employment. This measure embodied orientations that were ideological (welfare state), political (control of the masses) and economic (redistribution of wealth). The constitutional force of this decision strengthened the dualism of the labour market.

[30] In Tunisia, and even more so in Egypt, individuals with a higher education degree tended towards employment in the civil service.

[31] The reservation wage theory, which holds that an unemployed worker will not accept a job offer below a certain wage level, may also come into play.

[32] This approach, developed by institutionalist economists, emphasises the role of institutions (rules, routines, standards, beliefs, cultural codes...) to explain irreversibilities in a given context.

- *The informal sector: a “reservoir” of employment for graduates*

Added to this sector-based segmentation of the labour market, segmentation also exists between a formal labour market regulated by rigid legislation and a highly flexible informal labour market. Less hermetic, this segmentation allows individuals to switch between formal and informal employment depending on the risks or instability of the labour market.

The difficulties experienced by graduates to enter the formal labour market have led to a downgrading of their educational credentials, with informal sector employment sometimes persisting due to the practice of holding multiple jobs. In the event of long-term unemployment, the risk is one of falling into a downgrading “trap”. Obviously, there is only occupational downgrading in the strict sense of the term when a graduate is employed in a job that requires qualifications of a lower level than his or her acquired skills and competences. However, long-term unemployment does not efficiently prepare an individual for a job matching his or her initial degree, which gives rise to the feeling of being downgraded often mentioned by young workers.

As a result, by inducing a relative rigidity in wage levels between different qualification categories, labour force segmentation is fostering mass unemployment. In Tunisia and Egypt particularly, the coexistence of a regulated formal private sector, a flexible informal sector and a public sector that underperforms in job creation, but pays relatively well, fuels situations of voluntary unemployment. This encourages an over-rating of university degrees (and wage levels) in the public sector and, conversely, an underrating in the private sector.

1.2.3.2. A structural mismatch between labour supply and demand

A second strand of explanations accentuates the structural mismatch between labour supply and demand. This is a direct result of the economy’s productive structure and the failings of intermediation mechanisms in the labour market.

- *Insufficient job creation by the private sector*

If the dominance of the public sector has skewed the functioning of the labour market (*supra*), it has also hampered the emergence of a diversified and structured private sector. In many MENA countries, the transition from a centrally planned economy to a more market-oriented one has mostly translated into a structural and institutional inertia that has also inhibited private sector growth. Certainly, the persistence of rent-seeking behaviour on domestic markets has forced the productive economy to diversify and turn to international markets, thus limiting the private sector’s capacity to create (formal) jobs.

Moreover, the adoption of more open economic policies has taken these countries deeper into a competitive arena where their comparative advantage rests on the low cost of labour. This external constraint has failed to produce sufficient productivity gains and gradual improvement in standards of living. On the contrary, macroeconomic adjustments (mainly monetary) have curbed the rise of nominal wages and, more importantly, caused real wages to decline. This situation has largely driven greater employment flexibility, thus fuelling underemployment and the growth of jobs in the informal sector.

This also goes to explain the aversion of graduates for private sector jobs, which induce a substantive devaluation of their qualifications and high job insecurity without adequate monetary compensation. On a macroeconomic scale, this hinders, or even reverses, human capital accumulation when accompanied by large-scale expatriation. For the moment, recent productive dynamics in higher value-added activities (industry and services) that offer highly skilled work opportunities are not strong enough to modify the structure of the labour market.

- *Mismatches on the labour market*

The matching of supply and demand for skilled labour is also constrained by the labour market's lack of transparency. High information asymmetry, the inefficiency of programmes to support job-seekers and the high "transaction costs" of job-seeking all hamper labour market intermediation and a more efficient allocation of skilled workers.

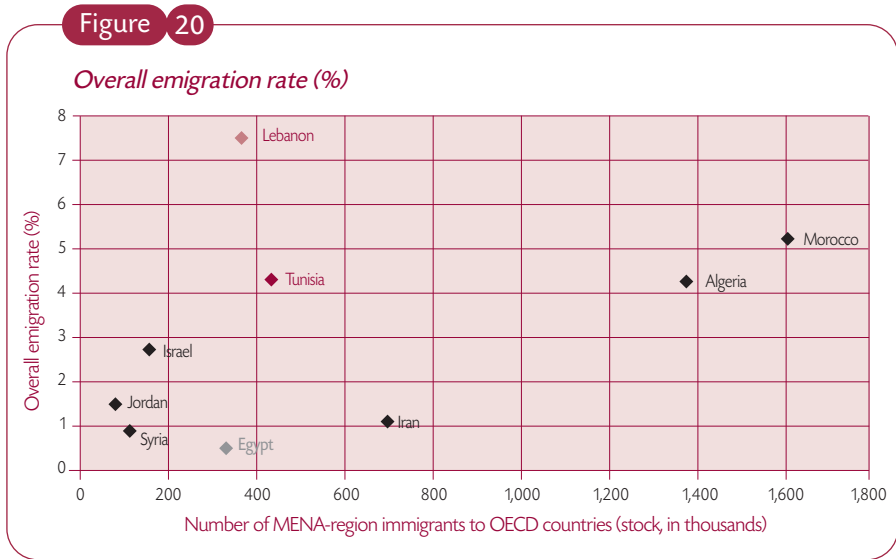
This deficiency also results from over-regulation of the labour market, which fails to offer incentives and channel the demand for skilled labour (cumbersome labour legislation, wage control...). These regulatory (and institutional) rigidities also prevent the efficient signalling of skilled labour supply (the constraint of social mobility, no trades classification, the virtual inexistence or dysfunctioning of employment agencies...). This reinforces the structural mismatch of labour supply and demand, which in many cases leads to skills shortages and the failure to meet private sector demands for skilled labour.

In fact, employers (or job seekers) offset this lack of intermediation by mobilising social or family networks, thus making it possible to sidestep established recruitment rules. In many cases, this "personalised intermediation" leads to sub-optimal allocation of resources and skews the signalling effects of degrees to the private sector. This means that entry into the labour market is not determined by recognised competences but through membership of a social network.

1.2.3.3. Labour market failures encourage the emigration of skilled labour

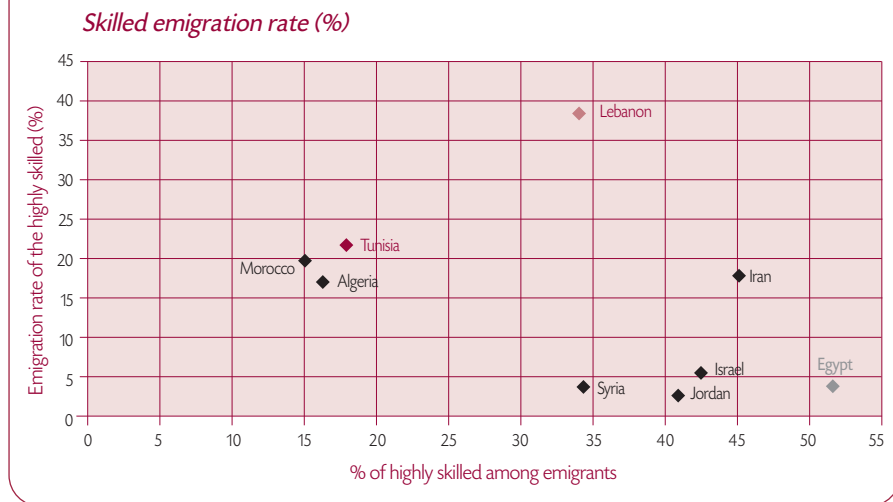
Over recent decades, migratory flows to OECD countries have gathered pace and mainly concern individuals who are the most highly skilled, more mobile and less constrained by restrictive immigration policies. The countries in the South and East Mediterranean region are particularly affected by the mass emigration of skilled workers (Docquier and Sekkat, 2007; Fargues, 2005).

In Lebanon, the rate of skilled-labour loss is one of the highest – mainly to North America (31 per cent), the Gulf States (26 per cent) and Europe (19 per cent) – whilst in Egypt, skilled workers account for half of the emigrants (Figures 20 and 21).



Source: based on Docquier and Sekkat (2007).

Figure 21



Source: based on Docquier and Sekkat (2007).

The analysis of skilled-labour emigration is a controversial issue and has been covered by a wealth of literature that is not useful to review here. We can nonetheless highlight three types of relationships.

- *The multiple determinants of skilled emigration*

For the most part, skilled migrants are from professional occupations, scientific and health professionals, managerial staff from large public and private companies, and, increasingly, young graduates. When migration flows are on a large scale, this may result in a country experiencing a very substantial “decapitalisation”. The brain-drain phenomenon is determined by both economic and political factors. In effect, the relatively shallow labour market opportunities for skilled labour, the decline of real wages, the large distortions of merit-based mechanisms for upward social mobility, and political instability are all push factors likely to incite skilled individuals to emigrate.

- *Skilled emigration gives rise to training incentives*

Considering that a skilled worker has a higher probability of emigrating, individuals who invest in human capital raise their expected return, which thus incites potential migrants to follow training (Beine *et al.*, 2008). This incentive is stronger among the more privileged social classes as they have the necessary financial resources, ready access to information and the advantage of belonging to extensive social networks. Plans to migrate, however, may also be abandoned at the end of a study path, which then increases the supply of skilled workers in the sending country.

In addition, skilled emigration is likely to produce retroactive effects in terms of remittance flows (income and investment) as well as knowledge and expertise. Given the impact (direct and indirect) of emigrants on economic growth, some countries formalise genuine strategies of transnational financial and economic networking in order to optimise brain gain.

- *Skilled emigration tends to reinforce labour market dysfunctions*

According to Docquier and Sekkat (2007), the distribution of losses and gains linked to skilled emigration (between the effects of brain drain and brain gain) seemingly depends on the context of each country (but also on the migrants' profile and motivations).

For want of data, it is impossible to demonstrate a net brain gain from skilled emigration for the three countries studied, even though, in the case of Lebanon, many strands of research concur that it is positive. Yet in all three countries, skilled emigration produces self-reinforcing dysfunctions on the labour market and marginalises graduates. Certainly, an underperforming labour market hampers human capital accumulation, which in turn makes it necessary for countries in the region to substantially modify their economic growth path. High levels of graduate unemployment tend to determine the strategies and behaviour for diversifying the risk of graduate underemployment through emigration, which first affects those graduates who are the most mobile but also in the shortest supply on local labour markets (particularly engineers).

In fact, there are two concurrent problems: first, the stock of graduates who are not readily employable and exert strong pressures on the labour market and, secondly, the shortage of human capital in specific fields (implying that qualifications in short supply locally are increasingly imported).

Improved schooling in the region has led to complex school-to-work transition processes, which are affected not only by the decline in the quality of public education but also the labour market failings.

1.3. The supply of private higher education

1.3.1. A potentially high demand

In the Mediterranean region, the demand for private higher education is potentially high and stems chiefly from the following factors:

- *A decline in the quality of public higher education*: massification in universities and specialised post-secondary institutes (science and technology, business...) and deteriorating teacher-student ratios have considerably reduced graduate employability, with the result that there is a poorly met demand for educational excellence and/or a greater match between education and companies' needs.
- *A need for skills upgrading through post-graduate training*: the cost of the low employability of graduates who are first-time job seekers is mainly borne by the State (through active policies and training schemes that very often lead to occupational downgrading) or by businesses (through in-house training).^[33] Given the massive and growing numbers of graduates, there is a huge need for skills upgrading via short post-graduate training courses.
- *The need to develop the management function in enterprises through continuing education*: a low management-staff ratio in the business sector (estimated at 15 per cent in Tunisia) and the crucial need to develop human capital in a more competitive environment have given rise to a virtually unmet requirement to validate work experience and/or run continuing training for managers/entrepreneurs via short executive programmes.
- *Student preference for enrolment in the home town/region*: the educational guidance system for secondary school graduates together with the tendency towards a spatial concentration of infrastructures (including inequality of access) mean that students need to be geographically mobile. This generates heavy indirect costs (transport, lodging...) that are sometimes in excess of the direct costs of enrolment in a nearby private institution.

[33] According to interviews with managers of a Tunisian company, the cost of in-house training for employees recruited with a Master's degree or higher (mostly engineers and consultants) increased threefold between 1998 and 2008.

Table 4 *The higher education supply in 2007*

	Egypt	Lebanon	Tunisia
Number of universities			
Public	19	1	13
Private	16	27	21
Number of higher education institutions			
Public	208		190
Private	110	10	9
Overall student population*			
Public	1,875,943	72,961	350,828
%	97.7	45.5	98.4
Private	44,001	87,403	6,023
%	2.3	54.5	1.6

* Excluding higher education vocational training centres.

Source: ACS, Lebanon; Bureau des études, de la planification et de la programmation, Tunisia; CAPMAS, Egypt.

1.3.2. Specific features of national development paths in private higher education

1.3.2.1. Lebanon: the construction of a dual system

Historically, the emergence of private universities in Lebanon clearly ties into a confession-based logic (Box 1). The share of private universities in higher education provision has gradually been increasing, but since 2001 this growth has quickened as a result of the sector's deregulation, growing pressures on public education and internationalisation of the system. Private universities, which are for the most part French-speaking, have gradually been developing a substantial part of their tuition in English.

Box 1 *Lebanon: a historically dual university system (IREDU and AFD, 2009)*

Initiated in the 19th century, higher education in Lebanon is characterised by a market-oriented approach that limits the role of the State^[34] in terms of both organisation and development. The coexistence of a public sector and private sector that are practically the same size (in terms of student numbers) has created an extensive educational offering.

...

[34] In 1993, a General Directorate of Higher Education was created within the Ministry of Education.



The public sector in fact comprises a single university: the Lebanese University. The educational offering of this state university covers all fields of study. It includes fifteen faculties, two higher institutes (similar to the French IUTs [University Institutes of Technology]) and three doctoral schools. The institution was deeply scarred by the war (faculty staff went abroad, buildings were destroyed, and five geographically dispersed campuses were created).^[35] The state university however is sapped by political interference: confession-based allocation of professorial chairs, struggles for budget control, etc. Despite this state of affairs, the Lebanese University is charged with the public service mission of providing free higher education. Some fields of study (medicine, engineering, etc.) are competitive with those in private universities. Enrolments come from both Lebanese students and foreign students (who account for 13 per cent of the student body). The Lebanese University has recently engaged in a major reform of its programme structure in line with the systems LMD (Licence-Master-Doctorate) and ECTS (European Credit Transfer System). The main deterrent to further developing the university is its notoriously inflexible organisation. By way of example, crucial decisions for any development have to be endorsed by the Council of Ministers in compliance with the official decree (1953) that founded the university and which has virtually never been amended.

Today, Lebanon has 27 private universities and a dozen private specialised higher institutions (with limited student numbers and offering at most two or three fields of study). These universities were founded in the 1860s-1870s under the auspices of religious missions. The American University of Beirut (founded in 1866) is the oldest, followed by the Université Saint-Joseph (1881). The others were mostly created after the Second World War. They reflect the influence of the institutional confessionalism that characterises the country.

The regional dimension of Lebanese higher education was enshrined by the creation of the Beirut Arab University (BAU)^[36] in 1960, which ranks as the country's second university in terms of student numbers. This regional dimension, bolstered by the high teaching standards of Lebanese universities and the limited educational provision in neighbouring countries, is now less apparent due to the Lebanese war, successive political crises and growing higher education offering elsewhere in the region.

[35] Campuses 1 and 2 (West and East Beirut) are the only ones to offer second- and third-level degrees. Their programme offerings are often the same, but although regular talks are held on uniting the two campuses, this project still has a long way to go.

[36] It has close ties with the Alexandria University in Egypt.

This network of private universities has introduced a diversified offering of overall good quality, which greatly helps to structure a competitive “market”. Whereas this market-driven regulation has produced positive incentivising effects as it has enhanced the quality of various public university programmes, it also favours the social and geographical fragmentation of schooling provision. Certainly, in the absence of a coherent regulatory framework, the supply side of education (public/private) operates on dualist lines and gives rise to major inequalities.

1.3.2.2. Egypt: a shift towards the privatisation of higher education?

Private higher education in Egypt has experienced robust growth over the last five years, in a situation where the state-controlled growth model has run out of steam. In effect, higher education has evolved within an extremely centralised framework (Box 2) that has injected considerable structural rigidity into the system. Public higher education operates under high constraints mainly because it is obliged to respond to strong demographic pressures and to counter the continuously declining quality of service delivery. The authorities have recently opted to quicken the pace of sectoral liberalisation, and this has favoured the emergence of a private higher education sector formerly limited to a minimal number of universities.

As in Lebanon, private sector growth tends to evolve on the fringe of the public sector and is based on a rationale whereby private actors substitute for public provision in segments where the latter is absent or inefficient, rather than on an explicitly complementary rationale. Egypt is facing a somewhat paradoxical situation: despite the fact that the public authorities are encouraging private higher education, private sector initiatives are encountering resistance from within the public administration itself.

Box 2 *Egypt: the nationalisation of higher education* (IREDU and AFD, 2009)

The birth of higher education in Egypt, in the early 19th century, stems from the country's heritage in the cultural and scientific fields: the library of Alexandria (3rd century B.C.), Al-Azhar (970 A.D.). The first schools (chiefly in engineering, medicine, veterinary sciences, agronomy...) were founded between 1820 and 1829, at the initiative of Muhammad Ali (viceroy of Egypt). Education was then seen as an efficient instrument for bolstering political power. In 1867, public schooling for children of Egyptian nationality was introduced. The 1923 constitution enshrined the principle of free elementary education, while the law of 1925 made it compulsory. The same year,

...



Cairo University was re-founded as a state-funded university,^[37] integrating all of the higher institutes created since Muhammad Ali's time. The laws of 1950 and 1952 enshrined the principle of free secondary and university education.

In 1964, under Nasser's presidency, a government decree was issued guaranteeing government jobs for higher education graduates. Although this decree is still in effect, it is virtually no longer applied,^[38] given the country's demographic and economic situation.

The organisation of higher education in Egypt revolves around two state bodies: the Ministry of Higher Education and Research and the Supreme Council for Universities, which is responsible for planning and coordinating university education. The universities enjoy administrative and academic autonomy.

In 2008, Egypt had 19 public universities, organised into faculties. Some also have higher institutes attached to them. Alongside the public universities, there is an Islamic university, Al-Azhar, which has special status.^[39] Egypt also counts 208 public technical institutes and 104 private institutes.

Many university projects are thus giving priority to a two-pronged strategic orientation: strengthening the ties between higher education and the labour market, and "branding" through partnerships with foreign universities (often in the framework of bilateral cooperation with foreign governments).

- *The Université française d'Égypte (UFE)*

The *Université Française d'Égypte* has greatly evolved since its inception in 2002. The bilingual tuition in French and Arabic is moving towards a trilingual approach incorporating English. Faculty staffing is almost complete and the UFE is becoming firmly anchored in Egypt's academic landscape. Compared to other institutions with foreign "branding", the UFE has kept a human dimension with 380 students in 2008 and an objective of 700 to 800 students at a steady rate. Increasing student intake will remain one of the major challenges for the university in the upcoming years if it is to successfully heighten its national visibility.

[37] Cairo University was first created in 1908 as a private institution, at the initiative of Egyptian intellectual and nationalist leaders to provide Egypt with a national elite.

[38] Higher education graduates can register an application for a public service job. As there are no statistics on the number of registrations relative to the number of graduates, it is impossible to estimate their numbers. However, it seems that registrations are very limited insofar as the public sector offers no immediate opportunities for those registered.

[39] Until Nasser's reform, Al-Azhar formed a closed system, in the sense that students were recruited from among *kuttāb* (Koranic schools) pupils, who attended neither public nor private schools. Students trained in the Azhari system could not, and still cannot, enrol in other universities. Since the 1961 reform, students trained outside the Azhari system can access the Islamic university.

The UFE's economic model lies somewhere between the selective programmes of public universities, which are able to select their students but only levy indirect tuition fees, and the private universities, in the strict sense of the term, whose for-profit goal is varyingly pursued. The UFE is thus perceived as a university affordable to the upper middle classes, with effective tuition fees averaging around EGP 20,000. Like all private universities, the UFE grants reductions in tuition fees on the basis of socioeconomic criteria or academic merit. If all grounds for reduction are taken into account, this covers 41 per cent of the students. Thus for the management programme, a secondary student who obtained a grade of 95 per cent^[40] in the Egyptian secondary school leaving examination (*Thanaweya Amma*) will pay EGP 18,000 compared to 23,500 for a result of between 90 and 95 per cent, 29,000 for between 80 and 90 per cent and 35,000 for under 80 per cent.

Labour market outcomes for UFE graduates are satisfactory. The collected data shows that almost all students found a job within six months of graduation or went on to pursue their studies in France. Indictively, however, wages are not high (in 2008, EGP 3,000 to 3,500 per month on average for graduates from the management programme and EGP 2,500 for those exiting the LEA [applied foreign languages] programme).

The challenge for the UFE, given these promising labour market outcomes, will be to achieve the standards of the longest-standing universities (the American University in Cairo comes first to mind), even though its objectives with regard to size will be much more limited.

- *The American University in Cairo*

The American University in Cairo (AUC), founded in 1919, has almost 5,000 full-time students studying in a large number of faculties. In addition, nearly 35,000 students attend continuing education courses each year. The AUC is expanding by relocating to a new campus on the outskirts of the city, which should enable it not only to increase the number of students by 20 per cent, but also, and more importantly, to improve the quality of its teaching. The AUC receives substantial ongoing support from USAID, which has notably contributed USD 100 million towards financing the new campus. The university is also supported by a foundation endowed with USD 500 million in 2008 and which has considerable borrowing capacity.

According to the data collected, beyond the university's academic selectivity, a major stumbling block for admission to the AUC continues to be the level of tuition fees,

[40] The average grade for the secondary school leaving examination is not measured on a scale from 0 to 20 but from 0 to 100 per cent.

which can reach as much as EGP 90,000 annually. Although 8 per cent of the students receive state scholarships (cofinanced by USAID), access remains highly socially selective. There is a 30 per cent reduction in tuition fees for the 25 per cent of students who obtain the best results in the secondary school leaving examination. Social selectivity is all the higher since the “individual return on investment” is considerably delayed (about ten years according to the AUC and our own estimates), given the high tuition fees and the generally low level of wages for graduates entering the job market in Egypt. This is one of the reasons why the university has not renewed its former in-house student loan scheme. The only credit mechanism available is out-sourced and is more akin to annual payment facilities (12-month credit allowing payment to be spread over the academic year) rather than a real student loan based on deferred repayment (where the principal is repaid once studies are completed).

It should be mentioned that the AUC is modifying its merit scholarship system (which automatically benefits the most advantaged) and moving to a need-based system.

As a final point, foreign students bring in almost 20 per cent of the university’s revenues^[41] and continuing training nearly 17 per cent (against 40 per cent in the 1970s).

As far as faculty is concerned, 45 per cent of the faculty are American, 45 per cent Egyptian and 10 per cent from other countries. The AUC has no plans in the short run to introduce an MBA programme (the return on investment would be too long) or a doctoral-PhD programme (due to lack of management consensus).

- *The British University in Egypt*

The British University in Egypt (BUE) is governed by Egyptian law and has a majority of Egyptian shareholders. BUE’s president also heads a large industrial group and its management board is chiefly made up of business leaders, which is indicative of the role that industrial groups play in its funding. The university is presented as “mostly non-profit”. Partnered by the British University of Loughborough, it had three faculties (engineering; business administration, economics and political science; and informatics and computer science) until the 2008 opening of a fourth faculty for nursing studies. In this last faculty, graduates may be pre-hired by future employers. The 65 top applicants will be eligible for a scholarship covering all tuition costs. An agreement for the validation of degrees has been signed with the Queen Margaret University in the United Kingdom.

[41] The AUC collects tuition fees from American students who spend a semester at the university on an exchange programme.

The BUE had 1,200 students in 2008, rising to 2,700 in 2009 (the objective being 6,000 students). Financial equilibrium has not yet been achieved but this could be the case in 2010. The university's mission may change (more clearly to a non-profit status) if, a planned sales tax were to be introduced by the Egyptian government, which would force universities to make a clear-cut choice between the taxed for-profit model and the VAT-exempt non-profit model.

The university is studying the possibility of setting up a student loan scheme, with support from local banks and international donors. In addition, the integrated nursing programme involves setting up a partnership with hospitals, banks, donors and universities.

1.3.2.3. Tunisia: developing "educational niches"

In Tunisia, private universities are a marginal component of the national university system. Even in a long-term development perspective, private universities will not serve as substitutes for public universities (unlike the Middle Eastern countries where private universities take in 30 to 50 per cent of the students). At least three factors have hindered private sector expansion:

- *The State's attachment to public education*, which is seen as a cornerstone of the Tunisian development model.
- *A rules/regulation duo offering little incentive*, characterised by the stance of the Ministry for Higher Education and the trades unions (an *a priori* reserved posture *vis-à-vis* the private sector, a limitation on licences granted to private institutions, the reluctance to open up internationally, restrictions on opportunities for teaching careers in the private sector). Three major apprehensions are cited: unequal access to higher education, the capture of educational resources and the capacity to accommodate mass arrivals of foreign students.
- *The negative perception of private universities*, as recent experience has meant that they are associated with poor quality and seen as an alternative solution to the failings of public universities.

On independence, Tunisia chose to place its stakes on developing its human capital. By investing in educational infrastructures combined with a number of sectoral reforms, it was able to achieve its objectives of universal basic education, with a resulting sharp rise in secondary school enrolment. Nevertheless, the limits of internal return observed in the secondary cycle led to a reform in 1991 of the Baccalaureate streams, in order to create more balanced access to the different streams and prepare pupils for fields of study in higher education offering better prospects.

Higher education (first initiated in 1959) took full shape in 1960 with the creation of a Tunisian university. Since then, the university system has undergone a whole series of reforms: reorganisations of university institutions^[42] and their management methods, along with revision of curricula, training and evaluation methods, etc.

In 1987, due to the number of students, the University of Tunis was split into four sectoral universities^[43] on a discipline basis, whereas the universities in the centre and south of the country opted for a pluridisciplinary approach.

In 2008, Tunisia had 13 public universities (including one virtual university providing university-level distance education leading to the award of degrees). Each of the 12 universities groups together a number of higher education institutions. A total of 190 institutions thus make up the Tunisian higher education arsenal but not all are under the single authority of the Ministry for Higher Education and Research. Twenty-nine of them are jointly supervised by the Ministry for Higher Education and other ministries such as the Ministries of Agriculture, Culture and Public Health. In addition to the institutions grouped under the 12 universities, there are 24 university institutes for science and technology (ISET: *Instituts supérieurs d'études technologiques*), as well as six higher teacher training institutes (ISFM: *Instituts supérieurs de formation des maîtres*).

It should be pointed out that private higher education does not have a confessional dimension in Tunisia, unlike the Lebanese institutions, for example. Private educational provision operates in fact within an incomplete regulatory framework. Regulation of the private education sector is recent, although some institutions were created long before this date (the Université Libre de Tunis was founded in 1973).

[42] Until 1974, higher education institutions were concentrated in Tunis. Geographical coverage was then extended and further developed with the creation in 1986 of three regional universities in the North, Centre and South.

[43] Tunis I, II, III and IV.

A law, passed in 2000, institutionalised private education, thus filling a legal vacuum. However, as the minimum capital requirements initially fixed for opening a university were very low, this led to the creation of poorly capitalised and generally unsustainable institutions. The more narrowly scoped Law 2006-50 of 24th July 2006 defines the equivalence for state and private-sector degrees. Yet, neither of these laws made it possible to achieve the objective of the Tenth Development Plan for the admission of 30,000 students in private higher education. Finally, the law of 2008 laid down the conditions for creating institutions, notably raising the minimum capital requirements for private institutions to TND 2 million and capping a foreign investor's shareholding at 35 per cent. This new law is intended to clear the sector of numerous micro-institutions considered to be underperforming.

The Ministry for Higher Education has listed 31 private higher education institutions, but only a few of them deliver a credible and quality service. Certainly, a good many projects for private universities espouse an opportunistic strategy of offering alternative training^[44] mostly to students who have failed under the state education system. The poor quality of educational provision in the 1990s has largely contributed to the negative perception of private higher education. Most of these institutions are also exposed to severe financial constraints (the banks' aversion to financing them because of insufficient and unpredictable revenue streams) and will most likely fail to meet the statutory requirement to increase share capital.

Although the private education offering is clearly marginal and poorly structured, some flagship experiences show that institutional dynamics are working (new players, internationalisation, "branding" ...). Several university projects, based on differentiated models, are shaping the contours of the country's private education offering, which tends to be structured following a rationale of "educational niches" that complement public higher education.

• *Dauphine: towards an internationalisation of Tunisian universities?*

After obtaining its official agreement, the *Institut Tunis-Dauphine* (ITD) opened in autumn 2009, offering instruction in three languages (English, Arabic and French). This is the first Tunisian university to have an international dimension, which also dovetails with the internationalisation strategy of French universities. From this perspective, its strategic and cultural dimension is robust: it follows a policy of excellence that values

[44] For example, some institutions offer almost 80 degrees or alternate between management and scientific/technological areas of study.

French expertise and culture (prolonging the secondary cycle of French lycées), while also providing locally based instruction for the Tunisian elite.^[45]

The Fondation Dauphine has a 35 per cent shareholding, the *Banque internationale arabe de Tunisie* (BIAT) 35 per cent, and the *Banque de Tunisie* (BT) 20 per cent, the remaining 10 per cent being in the hands of small shareholders. This nonetheless gives Dauphine a blocking minority and full control of the pedagogy, in exchange for its degree awards. The joint-degree programmes will concurrently award a Tunisian and French diploma. Similar selection criteria will be applied in order to align admission level requirements. The ITD will first offer Bachelor degree programmes, but plans to extend its teaching to Master's level and thereafter to a doctoral school.

Some tuition will be ensured by French teachers – one-third of the faculty in the first cycle and two-thirds in the second cycle. The institute's business plan foresees the admission of 1,000 students for the initial programme (by classes of 250) and 800 for continuing education courses. Most of the students will be Tunisian, but access will be open to foreign students, principally French, North African and Sub-Saharan. Registration fees will be around TND 7,000 (about EUR 4,000) for the first cycle, and the financial margin is due to fund a scholarship programme for some 10 per cent of the students.

- *The Mediterranean School of Business (MSB): a strategy as a regional centre*

In the opinion of the business leaders encountered, the MSB is in line with a strategy of regionalising the provision of educational services. The aim is to develop a world-class regional university hub in Tunisia with outreach to the Maghreb, Southern Europe and Africa.

Founded in 2003, the institution is still relatively small: two cohorts of 48 students enrolled in 2008 (and seven classes of graduates). The offering is mainly designed for national and foreign executives/business leaders and provides three types of continuing education: *i*) an MBA degree carrying registration fees of EUR 13,000 (TND 22,000) for Tunisians and EUR 18,000 for non-nationals); *ii*) executive seminars priced at USD 1,500 per week (focusing on business practices in different countries); and *iii*) an intensive qualifying management programme (PRIME) organised in English and running since 2008.^[46]

[45] At the same time, students who graduate with a joint degree from Tunisian and French universities are granted a stay permit extended from six to twelve months to look for employment in France.

[46] This programme is designed for young graduates and aims to improve employment opportunities through the acquisition of English language skills and an introduction to business environments.

The faculty is currently being built up. Only three teachers have been recruited so far (doctoral graduates from France and the United States), as the institution is still giving priority to visiting professors of some renown in order to heighten its visibility. Moreover, in order to give more credibility to their offering through “branding”, MSB directors have expressed their desire to obtain international accreditation (AMBA: Association of MBAs).

The capital structure is split between several shareholders (banks, companies, investors) with no single shareholder owning more than 10 per cent. The institution’s investment project is ambitious and it has plans to relocate to a modern campus in the Berges du Lac business centre on the outskirts of Tunis. The first development phase requires substantial investment in the construction of new premises. The second mid-term investment phase would enable an integrated campus to be built. The opening of this campus would allow launching new Bachelor’s degree programmes, as well as Master’s programme specialised in management and engineering.

- *Esprit: a strategy designed to complement the public offering*

Created in 2003, Esprit established itself within a few years as a credible institution for training engineers in computing and telecommunications. Today it has nearly 1,300 students^[47] and there is a continuingly high number of candidates for its competitive entrance exam (600 applicants for 200 available seats, raised to 280 seats for the academic year 2008). Tuition fees are TND 4,000 annually over five years (hence, all else being equal, five years of training at Esprit would be worth the cost of one year of tuition in France).

Esprit’s market offering, which targets training for technology (or operational) engineers, complements the offering of public engineering colleges, which attract the best secondary graduates and students from preparatory schools. Esprit is thus contributing to the growth of educational programmes that are also open to ISET^[48] students and more relevant to the needs of the national economy. In their fifth and final year, students are required to complete an internship project. If the participating company determines the student’s salary level, it undertakes not to underemploy the student. For the three graduate cohorts that have entered the labour market (i.e. about 180 people), Esprit has announced a 100 per cent employment rate. Yet, this result needs to be viewed in perspective as graduation is contingent on obtaining a work contract.^[49]

[47] The share of foreign students is limited to 15 per cent.

[48] Higher institutes of technological studies (postsecondary 2-year cycle). In recent years, the ISETs have not been spared the general trend towards massification (almost 4,000 students per ISET), with a decline in quality and a marked decrease in successful labour market outcomes for graduates.

[49] In the absence of a work contract, the institute indicates that the student’s follow-up period is extended.

Esprit has also invested a great deal in building up its teaching staff. The institution employs forty permanent teachers who ensure 55 per cent of the teaching hours and administration (45 per cent being met by outside professionals and, informally, by teachers working in public education). Esprit's management point out that salaries for permanent staff are between 20 and 250 per cent higher than those paid by the public sector (for an annual workload of 400 hours of teaching and 300 hours of administration).

The Esprit project has been funded by private business. The shareholding is split into one-third ownership for the founders, one-third for Tuninvest and one-third for businesses in the ICT sector.

The outlook is encouraging: *i*) the institute's new location in the technology park will increase its visibility and admission capacity (the new building can accommodate nearly 2,000 students); *ii*) the introduction of a Master's research degree programme and the recruitment of researcher-teachers to further the operationalisation of academic research in partnership with businesses (chiefly in the fields of automotive intelligence and electronic administration); *iii*) the launch of a preparatory class in partnership with the French preparatory school *Sainte-Geneviève*, which will strengthen the project's credibility and position it in a high-growth market niche at a time when the *Institut préparatoire aux études scientifiques et techniques* (IPEST) is struggling to maintain its teacher-student ratio,^[50] and *iv*) the start-up of new programmes that target "branding" through partnerships with international operators (such projects include an industrial engineering course with the *École des mines de Saint-Étienne*, a civil engineering course with the *École des Ponts et Chaussées* and a renewable energies course in the medium-term perspective of creating a petroleum institute).

To sum up, the higher education offering in Tunisia is growing rapidly within a highly dynamic regulatory framework and, in the near future, several first-class players should appear on the scene. However, it is still relatively difficult to foresee the "final" form that the private higher education sector will take.

[50] As the leading preparatory school for the *grandes écoles*, IPEST is part of the secondary education sector. The wage differential between tertiary and secondary teachers may largely explain the decline in the student-teacher ratio.

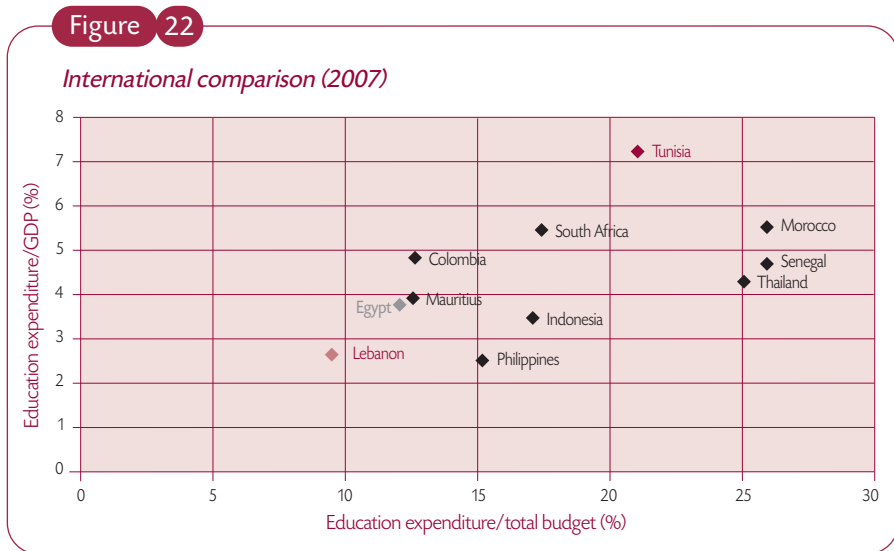
1.4. Hard-to-meet financing requirements

1.4.1. Financing the provision of higher education

1.4.1.1. Public financing is running out of breath

The countries in the region have overall allocated a substantial share of their state budget to education. Of the three countries studied, Tunisia's efforts have proved the most sustained over time. On average, the country has earmarked almost 6 per cent of its GDP annually over the last twenty years, compared to 4 per cent in Egypt and 3 per cent in Lebanon (Figures 22 and 23). The expenditure on higher education rose from 4.5 per cent in 2001 to 5.33 per cent of Tunisia's total budget expenditure in 2007, the equivalent of almost 1.8 per cent of GDP (MHESRT).

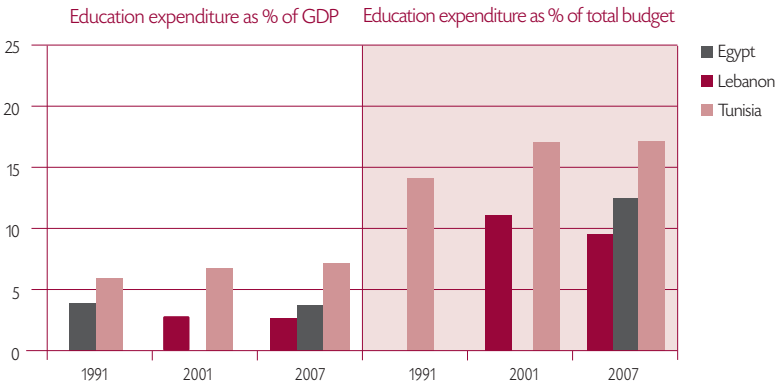
The size of education expenditure in overall budget highlights the priority given to education, although amounts may be reduced by budget arbitrations. In Lebanon, education expenditure has fallen in relation to military and social spending in a worsening political setting.



Source: WDI data, 2009.

Figure 23

Changes in education expenditure

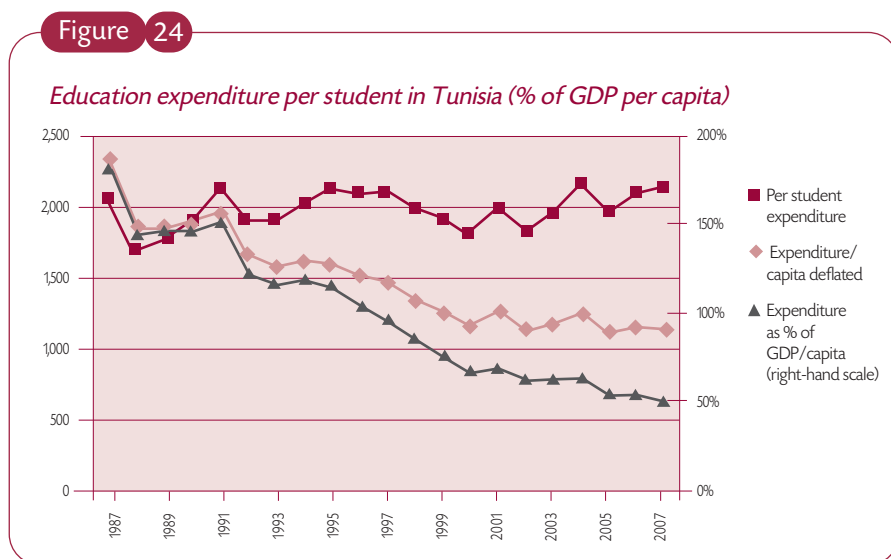


Source: WDI data, 2007, 2009.

Detailed chronological data on public financing of education – and particularly higher education – are fragmentary, notably in Egypt and Lebanon. Five observations can nonetheless be made:

- Public expenditure is mostly allocated to operating expenditure and primarily to paying the civil servant wage bill. The constraint on expanding admission capacities is a strong determinant due to the substantial numbers of newly enrolled students. This operating expenditure represents almost two-thirds of the expenditure in Tunisia and an even higher share in Lebanon where wages for teaching staff account for nearly 80 per cent of education spending (and close to 60 per cent of the budgetary allocations to the Lebanese University). In Egypt, the wage bill also absorbs three-quarters of the education expenditure. The remaining expenditure is mostly allocated.
- Public expenditure on higher education in Tunisia and Lebanon, which for many years was focussed on primary and secondary cycles, is constantly rising. In Egypt, on the other hand, almost 70 per cent of the education expenditure is dedicated to primary and secondary education. Furthermore, a sizeable portion (40 per cent) of the public expenditure earmarked for university funding is absorbed by no more than three large Egyptian universities (Al-Azhar, Cairo University and Alexandria University).

- The evolution of per-student expenditure shows the limits of public financing in the face of the massification of universities. In Tunisia, per-student expenditure has remained close to TND 2,000 per capita since 1987, which in fact corresponds to a decrease in real monetary terms (deflated expenditure), as well as a decrease in the per-capita expenditure as a percentage of GDP, reflecting the budgetary constraint of a model based on free education and non-selective access (Figure 24). With a relatively low per-capita expenditure as a percentage of GDP, Tunisia appears to be converging with the levels observed in the developed countries, although teaching quality is not comparable.^[51]
- In none of the three countries is public financing linked to objective- or performance-based contracts. The only criterion imposed on universities is that of adjusting their admission capacity.
- Unlike Lebanon, the Tunisian and Egyptian governments provide no funding for private higher education, although private universities can benefit from a transfer of land or building lots in technopolis-type zones at preferential conditions (*supra*).



[51] The least developed countries (LDCs) spend almost 150 per cent of per-capita GDP per student, emerging countries between 50 and 100 per cent and developed countries between 25 and 60 per cent.

The stagnation of expenditure in primary and secondary education (notably in the case of Egypt), the rationalisation of public financing (which has been partly replaced by private funding in the case of Lebanon) and, more generally speaking, the ongoing decrease of per-capita public expenditure demonstrate the governments' narrow leeway in higher education funding.

In addition, faced with growing social demand in a context of budget expenditure rationalisation, high operating costs (wages) have ultimately produced a crowding out effect on investment expenditure, which has been in decline since the 1990s. This disinvestment – which in the medium term jeopardises potential economic growth – has forced public authorities to manage the massification of higher education in ways that preclude improving its quality.

1.4.1.2. The diversity and fragility of private universities

Given the features of the higher education systems in the countries studied, it is useful to highlight some of their differences. Certainly, whereas Egypt and Tunisia have engineered a public higher education system that is almost wholly state-funded, Lebanon is characterised by a hybrid education system that receives both public and private funds (Table 5). While public university financing can rely on budget resources, private universities need to mobilise diverse sources of funding – direct beneficiaries (students, and by extension, their parents),^[52] indirect beneficiaries (companies), religious institutions, foreign governments and foundations/private benefactors.

Table 5 *Modes of financing public and private universities*

	Public Universities			Private Universities		
	Exclusively public funds	Public and private funds	Exclusively private funds	Exclusively public funds	Public and private funds	Exclusively private funds
Egypt	✓					✓
Lebanon	✓				✓	
Tunisia	✓					✓

Source: IREDU/AFD Report (2009).

[52] Private expenditure on education is the third highest item in household budgets in Lebanon, after food and transport (ACS).

In the exceptional case of Lebanon, although public funds are channelled primarily into state universities, they also contribute marginally to private institutions.^[53] Based on the data collected in Lebanon,^[54] we were able to identify four main sources of private university funding.

- *Tuition fees paid by students*

Lebanese universities basically rely on tuition fees to fund their activities: these fees can consequently reach substantial amounts. For the top ten private universities, fees range from USD 6,000 to 23,000 per year depending on the study programme (in general, fees are closer to the lower end of the range) or, in other words, from 100 to 400 per cent of annual GDP per capita. The university system is thus highly socially selective. The state-funded Lebanese University, however, which takes in almost half of the student population and has very low tuition fees, is a notable exception.

Yet, calculating university revenues does not boil down to simply multiplying the number of students following a programme by the corresponding tuition fees theoretically due. On average, nearly 30 per cent of university students receive financial aid and, moreover, the effective payment rate for tuition fees is no more than about 70 per cent.^[55] At the *École supérieure des affaires* the choice was made to keep tuition fees low compared to equivalent courses in competitive institutions (between USD 5,000 and 10,000 per year) so as to ensure a recovery rate officially bordering on 100 per cent.

- *Donations from religious congregations, corporate foundations (national or international), family foundations or individuals*

As a general rule, donations are used to cofinance university financial aid budgets. Although, in each institution, from 6 to 7 per cent of tuition income are earmarked for student aid, the increase in applications for aid (in the number of students and the average amount per application) has led universities to seek additional funding from private benefactors, corporate foundations, or even religious and political organisations. At the *Université Saint-Joseph*, the financial aid budget amounts to around USD 5 million, which represents 10 per cent of the total budget. About half

[53] By financing requests for private university schooling. In fact, the Lebanese government awards full scholarships to the top three candidates in the national secondary leaving examination for the entire length of their studies and in the universities of their choice. Apart from the Lebanese University, these requests also involve the *Université Saint-Joseph* and the American University of Beirut.

[54] Our analyses mainly covered the case of Lebanon, given that the country's private universities have a longer history than the two other countries.

[55] This figure is not published by any of the universities, as divulging the percentage of non-collected fees may encourage all students to align their own payments with the effective average payment.

of this budget comes from student contributions, the other half being sourced from foundations and private donations.^[56]

Personal foundations rarely fund universities directly: they more often award their funds to individuals, chiefly on the basis of recommendations from the university's financial aid services. Professional or corporate foundations, on the other hand, more commonly allocate financial aid to study programmes. The amount of funds donated by these foundations is unknown. Loans from the Hariri Foundation apparently enabled nearly 35,000, mainly Sunnite, students to pursue their studies in Lebanon or abroad during the 1980s and, to a lesser extent, in the 1990s. Created in 1979, the Foundation granted zero-interest loans that were theoretically repayable but which, in practice, were often not reimbursed for want of an efficient collection service.

- *International cooperation grants*

Apart from the funds available to public education, some private universities are financed directly through grants under bilateral cooperation agreements. This is notably the case of the *Université Saint-Joseph* (in the framework of cooperation with France), the American University of Beirut (with the United States) and the Beirut Arab University (with the Gulf States).

- *Bank loans*

In view of the high interest rates practiced by Lebanese banks (often over 10 per cent in Lebanese pounds) and the short loan maturities available to them, universities rarely resort to bank credit to finance infrastructure, although the banks report that this practice seems to be gaining greater foothold. The amount of outstanding loans granted to universities by the banks is unknown. The fact is, however, that banks are increasingly seeking custom from universities. This particularly applies to the Lebanese American University, the American University of Beirut and the *Université Saint-Joseph*, whose estimated revenues are respectively USD 86 million, 77 million and 50 million. Next is the Beirut Arab University with revenues of USD 42 million. All these universities report financing requirements (estimated at between USD 10 and 15 million) that could be met by local banks and/or international donors.

In Lebanon, 80 to 90 per cent of private university resources are funded by tuition fees. The financing of higher education provision therefore transits to a very large extent through non-banking channels and relies on the solvency of the direct beneficiaries.

[56] This ratio is somewhat approximate insofar as neither donations nor paid-in tuition fees are known. It must therefore be taken as an order of magnitude.

1.4.2. Financing the higher education demand

1.4.2.1. Financing modes: different maturities

Financing the demand for higher education varies according to whether schooling is in a public or private university. In the first case, since there is little or no charge for tuition, the demand is financed by personal resources or scholarships/grants (on socioeconomic or merit-based criteria). The second case implies that other modes of financing need to be mobilised, in varying degrees depending on the country.

- *Self-financing*

In most cases, studies are financed by family or the student's own resources. Parental support remains a crucial factor for access to private secondary and higher education institutions.

Student employment, which constitutes another individual resource, may be supervised by university financial aid services: at the Lebanese American University, students who receive financial aid (reduced tuition fees) may be required to work a certain number of hours for the university (help in the library, student reception...). Students also often have part-time jobs. A high number of students prolong their university studies in order to reconcile employment and study – a practice that is wholly accepted by the universities.

- *Student scholarships and grants*

Student scholarships and grants are given by the State and, in the case of Lebanon and Egypt, by the universities themselves or by foundations. Allocation criteria^[57] fall into three categories:

- Merit-based scholarships/grants exist in most institutions, without necessarily being conditioned on socioeconomic criteria (they are nonetheless limited in number). Most often, they give students the opportunity to pursue studies abroad.^[58]

In Lebanon and Egypt, many private universities award scholarships to top performers in the secondary school leaving examination, mainly through reduced tuition fees (or in exchange for work at the university). This is the case, for example, of the American University in Cairo. The *Université française d'Égypte* awards nine full scholarships a year (three recipients per faculty) and partial scholarships in the form of reduced tuition fees.

[57] Scholarships correspond to an allowance paid in instalments to a student, but they may also be allocated in the form of a (partial or total) reduction of tuition fees. There are also half-scholarship and quarter-scholarship schemes, designed to avoid excessively high threshold effects.

[58] In 2007, the Tunisian government granted 1,873 scholarships for study abroad (mainly in France and Germany, with some in Canada and Eastern European countries).

- Scholarships and grants based on socioeconomic criteria are greater in number: in Lebanon, 10 to 25 per cent of the students at each university receive this type of award. In Tunisia, this system,^[59] reserved exclusively for public university students and managed by university financial aid services, has been combined with a system of loans on trust awarded by the *Offices d'œuvres universitaires* and the National Social Security Fund (in the latter case, at a 2.75 per cent interest rate).^[60] This mechanism has reported a high rate of non-repayment of student loans. In Egypt, the scholarship and grant system is generally of limited scope given that public education is theoretically free. The centres of linguistic excellence within the public universities award scholarships allowing their students to pursue their studies in Egypt or abroad. In private higher education, scholarships and grants are also allocated on the basis of socioeconomic criteria. The AUC has expressed its will to develop need-based financial assistance rather than merit-based scholarships, the latter being generally awarded to students from the more comfortably off families;
- Scholarships and bursaries based on personal or confessional networks can be awarded by universities (the donor can channel his award to one or more students). This seems specific to Lebanon.

It is quite exceptional for a scholarship or grant to cover the full cost of tuition, and still less a student's living costs. In Lebanon, the budgets reported by the financial aid departments indicate that funding covers between 20 to 40 per cent of the total cost for the academic year, excluding the opportunity cost.

- *Student loans subsidised by private universities*

Private universities in Lebanon offer student loans that are administered either internally or through the intermediary of banks. Following the same logic, some universities directly allocate or refinance subsidised loans in order to avoid the threshold effects between students receiving a scholarship and students with no financial assistance:

- The *Université Saint-Joseph* offers an *internal loan scheme*: the university's financial aid service pays the student's tuition fees directly to the faculty and allows the student to repay in several instalments. The instalment arrangement can either be a service in itself (the student pays his or her tuition to the financial aid service over

[59] Almost 98 per cent of scholarships involve the first two university cycles. Scholarships for study abroad are few (nearly 2 per cent), and mainly concern third-cycle students. Loans from the National Social Security Fund are given primarily to first-cycle students (nearly three out of five students), whereas the *Office d'œuvres universitaires* scholarships target mainly third-cycle students (23 per cent) and overseas students (12 per cent).

[60] The conditions of eligibility for university loans from social security funds are as follows: *i*) be enrolled in a public institution; *ii*) not receive or have formerly received a national university scholarship or one that enters into the frame-work of a technical cooperation agreement or a university loan from the State or from an institution that offers scholarships to students; *iii*) not be in paid employment; *iv*) be unmarried; and *v*) submit the application not later than 15 days after the date of enrolment.

several months) or a temporary service (while the student is waiting for funds from the financial aid service or from a foundation). Students who have problems paying for their tuition can receive a zero-interest loan. The allocated loan amount is mainly contingent on the student's level of need and his or her family's resources, family expenditure and the number of siblings at school. The application for assistance must be renewed annually. Once they have graduated, the students reimburse the amount received to the financial aid service. The repayment schedule involves reimbursing one year of financial aid over one year, starting from the year after final graduation. An important aspect of this mechanism depends on the students' strong sense of belonging to their university and on the institution's widespread influence in the country, which means that non-repayment is a risky matter and comes at a high "social cost".

– The American University of Beirut offers an intermediated loan mechanism: the university launched four tenders to local banks, offering them the exclusivity of student loans for four fields of study: medicine in 2003, engineering in 2004 (starting from the equivalent of level L2), nursing in 2005 and business from 2006 (also from level L2). Each bank was required to indicate two interest rates in its proposal, one applicable to the period of study (involving payment of loan interest only, and the second to begin only after graduation (payment of interest and principal). The lowest bidders were respectively HSBC, Byblos, Banque Misr Liban and Bank Med. Each product offered to the students of each study programme is different. In all cases, a grant from the financial aid service of the American University of Beirut complements the conventional bank loan. This means that either the loan is subsidised (payment of all or part of the loan interest during the period of studies, with 200 basis points subsidised for medicine, nursing and management), or the tuition fees are reduced (for engineering, but students wishing to benefit from this are required to take out a loan). Each year, the loan only covers from 5 to 30 per cent of the tuition (the loan is capped at USD 3,300 per capita for nursing, USD 3,600 for business, USD 6,500 for medicine, with no cap for engineering). It should be mentioned that for some fields of study, a minimum revenue is required from the guarantor (almost always a parent): for example a monthly income of USD 600 for nursing and medicine. This criterion is applied to long study programmes or those with highly variable returns (respectively medicine and nursing) to reduce the risk for the affiliated bank, as it is deemed that the risk involved is greater compared to engineering or management. The total number of students receiving aid at the American University of Beirut is 2,792, in the form of partial assistance (that is, 91 per cent of the students are assisted) and for an average amount of USD 3,342. Nearly 34 per cent of the students receive financial aid. In addition, 160 out of 300 medical students were allocated a loan, plus 250 engineering students, 85 in business and 12 in nursing (a total of 507 students).

- *Personal bank loans*

Personal bank loans are most often confounded with consumer credit that is granted by banks on market terms but invested by parents in their children's education.

In Lebanon, personal credit has grown over the last four or five years at the initiative of retail banking, in accordance with local bank classifications. These loans are similar to consumer credit products in terms of interest rates (from 9 to 12 per cent in Lebanese pounds, and about 200 basis points less in dollars) and maturities (short, from 2 to 5 years at most). These loans are not officially labelled as being funds for schooling but the information gathered from banks indicates that their sales staff sell this product to parents whose children attend school. The parents are thus the borrowers and parental assets serve as loan collateral. As banks rarely know the reason why personal loans are taken out, it is difficult to assess the number of loans dedicated to "educational investment" but, on the basis of partially aggregated data, it is still estimated to be relatively small. This is because, at such high rates, few productive investments (in human or physical capital) effectively generate capital gains or allow a leverage effect to come into play with loan financing.^[61]

In Egypt, the recent restructuring of the banking sector and the subsequent emergence of retail banking services have not yet enabled the bank offerings to develop further than consumer credit products or personal loans (with collateral). The Egyptian banking sector's student loan policies seem less mature than those in Lebanon.^[62] In Tunisia, given the predominance of public education, the development of financial services specialised in student loans holds little appeal for the banks, which considerably limits the scope for a banking mechanism to finance the education demand. For several years, the sector's only financing mechanism relied on a financial market product. So as to reduce the cost of need-based financial aid, regulated credit is offered in order to finance studies in public education. The price is fixed (100 basis points over the money market rate) for an amount of TND 500. Recently, local banks have begun to market complementary financial services.

[61] As a reminder, private returns to higher education are in the realm of 10 per cent (one additional year of higher education schooling enables an individual to increase his or her earnings by 8 to 12 per cent).

[62] In most emerging countries, such as Turkey or South Africa, the growth of student loans emerged five to six years after the mass expansion of personal credit.

Box 4 Two student loan products in Tunisia

Among the different banking services for student loans, the two following examples are representative of the local offering:

- The *Union bancaire pour le commerce et l'industrie* (UBCI) is developing a universal credit offering (not specifically addressed to students) which is mainly designed to gain young customer loyalty *via* two products: a loan product backed by a savings plan (graduate plan) and a loan product backed by a service package, which notably incorporates the opening of an account and the issuance of a credit card (a product for young customers under the age of 25).
- The BIAT launched a loan product for students (*Najah*) in 2009. This product is also backed by a savings plan giving access to a three-year loan on the basis of 200 basis points over the money market rate. The loan, limited to three times the amount saved, up to a ceiling of TND 15,000 (about EUR 8,300), is granted on a quarterly basis.^[63] It is repayable 6 years (including one grace year) after the last loan disbursement has been made.

Generally, Tunisian banks structure student loans as they do consumer credit, but aim for limited margins. It should be noted that the UBCI considers the risk on consumer credit to be relatively low, with a rate of outstanding credit at 10 to 12 per cent (payment arrears) and a final default rate of 3 to 4 per cent.

1.4.2.2. The constraints of financing the demand

While loan maturities for financing modes differ across countries, our observations document a limited expansion of financial services dedicated to financing higher education studies, which also brought to light a shortage of schemes set up by the universities themselves and the absence of a structured student loan market.

University-funded loan schemes – mostly operated by private universities in Lebanon, and in Egypt to a lesser degree – reveal a certain confusion of roles within the universities. Almost all or them, knowingly or otherwise, build up a portfolio of loans (by accepting deferred payment or by granting direct loans) and guarantees (by setting high tuition fees but only recovering payments below the theoretical fee levels). In the second case, the university is well and truly the final guarantor for each student,

[63] With a maximum payment of TND 4,000 per year for study in Tunisia and TND 7,000 per year for study abroad.

as it ultimately bears the cost of non-payment. It could be thought that it is not up to the universities to undertake collection of outstanding loans or to include huge amounts of guarantees (at least 25 per cent of their annual budget) on their balance sheets. Outsourcing loan management would, *a priori*, be a solution that would generate lower transaction costs and free universities from the job of managing arrears.

In the case of bank financing – and despite the fact that banking systems in the countries studied are unequally mature^[64] – the structural inadequacies of the student loan market constitute a strong structural constraint to accessing funds. Three types of limitation – with cross country variations – hinder the growth of bank financing for schooling.

- **The lack of market depth/maturity**

In countries where private education remains an exception to the rule (Tunisia) or marginal (Egypt), the student loan market lacks depth, which accounts for the lack of maturity of the financial offering. This market is not yet structured. In most cases – apart from some Lebanese banks – loan products most often coincide with consumer credit products. The banks' approach is more a question of strategic choice than of technical constraint. Certainly, although relatively sophisticated portfolio monitoring tools exist (notably, access to a centralised pool of individual records and to a credit scoring system), Tunisian banks have very clearly adopted a rationale of universal, widely accessible products. Competition tends to intervene at the level of scale economies and, to a lesser extent, banking niches.

Moreover, the monetary authorities provide no real incentive encouraging banks to contribute to financing education. One possibility would be to exempt banks providing student loans from statutory reserve requirements, for an amount matching their loan portfolios. This type of measure would make it possible to lower the interest rate proposed to the final beneficiary by about 100 to 200 basis points. In the same perspective, the *Banque du Liban* could administer, on behalf of the Ministry of Finance, interest-rate subsidies reaching up to several hundred basis points to refinance the portfolios proposed by the banks.

[64] The Lebanese banking system, which is mostly organised around private banks, is probably one of the most modern and liquid in the Arab world. The Egyptian and Tunisian banking systems were for many years dominated by the public sector and have only engaged in a sectoral restructuring in recent years through the financial rehabilitation and privatisation of state banks. Even if healthy progress has been recorded (mainly regarding compliance with international standards and the introduction of new services), the State continues to play a major role.

- *The low profitability of student loans*

Low market volume effectively reduces the profitability of student loans, assuming that a larger market would reduce the fixed costs associated with developing new specialised banking products. Added to this are two other factors: the actual nature of the banking product, which has a limited unit value, and the banks' arbitrages in favour of more profitable investments.

In the case of Lebanon, it should be mentioned that little visible incentive is given to banks to encourage them to invest in education financing products, mainly compared to state bonds which offer high levels of return. If long-term resources dedicated to financing education were made available, this would very likely provide an incentive for banks to modify their margins on such arbitrage operations.

- *The banks' aversion to "student risk"*

In all three countries, the banks balk at taking credit risks on student loans, even though most of them consider that this market has high potential in the medium term (5 years). The granting of a loan remains almost exclusively conditioned on the provision of collateral and proof of asset ownership (a parental guarantee is thus systematically required). Loan approval is usually given to individuals with the best collateral rather than to the best individual projects. On this count, the situation is comparable to that observed for SME financing. Yet, the mobility of human capital and the high probability that students will increase their private returns abroad constitute a promising wellspring of future deposits for the banks; hence, their interest in not discriminating between resident and non-resident students, and more generally, between resident and non-resident customers.

In the medium term, the student loan market will in all likelihood expand. At present, it remains very limited (although growing in Lebanon) as the players involved are not only reluctant to take explicit risks but also lack coordination, which hinders the possibility of risk-sharing and bringing costs down to reasonable levels.

Part 2

Financing Higher Education in the Mediterranean Region

Thomas MELONIO and Mihoub MEZOUAGHI

In emerging countries, economic growth is closely correlated with the fast-paced expansion of higher education. Economic development implies the use of increasingly qualified human resources, which thus means training an increasing number of higher education graduates. Consequently, higher education provision increases in parallel with a country's national income, due to the effect of labour market demand. Yet, the opposite causal relationship is not entirely devoid of sense: as the standard of living rises, the aspirations of the younger generations for knowledge and culture help to drive a rise in the demand for higher education, independently of any economic considerations.

The higher education models of MENA countries are clearly different: the role of private education, cultural particularities, financing modes and the degree of internationalisation are all country-specific factors. Yet, one region-wide constant is the growing education demand from students (and their families), along with the difficulties of the public sector to cope with this pressure on government resources – all the more so, given that the demand is not simply rising, but also becoming more diversified.

The massification of higher education to the detriment of education quality is a major source of tension affecting middle-income countries in general and those of the Mediterranean basin in particular. The demand for education is growing sharply – and more rapidly than supply (as can be observed notably in Egypt and Tunisia), despite substantial levels of public spending. As a result, there is a strong likelihood of witnessing a poorly managed educational expansion in which student numbers show a statistical increase without any real human capital accumulation that would contribute to national economic growth. These trends can lead to dissatisfaction among three kinds of players: the students, whose schooling does not adequately

prepare them for employment; companies, which find themselves facing recruitment problems; and the State, which is aware that the education system does not meet the social expectations it inspires.

This raises an obvious first question about how to adapt higher education systems. Myriad arbitrations, such as the rate of transition from secondary to higher education, the choice of academic programmes available to students, student mobility policies (at national and international level), the pricing policy for access to higher education or the composition and working conditions of faculty, essentially involve decisions in the realm of the State's sovereign powers.

Next comes the question of the support that donors can provide for public higher education policies. The demand addressed to donors is all the keener as it is emanates simultaneously from governments (which are under demographic pressures), universities (which do not necessarily have access to funding) and students (most of whom also lack the means of financing their studies).

Which forms of financing should be given priority in the light of the needs expressed? How can external interventions be precisely targeted so as to produce the greatest impact at the lowest cost? What role should the private sector play, both in terms of educational supply (through private university projects) and demand (financing the costs borne by students or workers who wish to follow further training)? How can education provision be geared towards study programmes that guarantee the highest rates of integration into the labour market? How can higher education, particularly private, be prevented from expanding in a direction that reduces social mobility in the countries under consideration?

2.1. Key conditions for development of higher education

2.1.1. *Quality as a prerequisite*

The objective of managing the massification of higher education raises questions about the determinants and indicators of quality.

- *Demand-driven management*

A first approach to assessing the quality of a study programme, or even of a higher education system, is to observe the demand that they create.

In state systems, detailed data from student guidance mechanisms make it possible to measure the demand by programme and by region. Certain programmes are very

much sought after because they offer a low teacher-student ratio, because they are reputed to guarantee access to employment, or because they offer a form of social or intellectual prestige. This is the case, for example, of the selective programmes at the Lebanese University, of medicine and engineering in Egypt ^[65] and of medicine and the *grandes écoles* in Tunisia.

In the public sector as in the private sector, demand serves as a kind of sanction, which varies according to the setting. In fact, each country has a student guidance system to steer students according to their *desiderata* and the effective admission capacities of educational institutions. A Ministry of Higher Education can thus identify the programmes or universities for which demand is high and those that, on the contrary, incite scant demand. Yet, external observers often have little chance to access data on the precise hierarchy of student demand, as this type of information is by definition sensitive, or even protected by confidentiality rules.

It would certainly be beneficial for the Mediterranean countries to step up efforts towards better access to information and greater transparency for both students and universities, in order to give students a clear indication of which university applications are very unlikely to succeed and also to help expand the offering of the most popular programmes (whether the demand comes from students or companies).

A second way to evaluate the quality of the public offering is to analyse the growth of private higher education, when this sector is authorised to award diplomas for programmes equivalent to those in public institutions. The difference in price that students (and their parents) are willing to pay implicitly suggests a difference in quality. In other words, as the private sector by definition receives less financial support than the public sector, it can develop only by taking advantage of public sector limitations in a given field of study, on condition that it delivers extra value-added to its future students. Otherwise, no one would pay to enrol either themselves or their children in private institutions.

- *International accreditation and partnership policies*

International accreditation means obtaining from a reputedly independent international body, the recognition of an institution's educational quality and the high academic level of its students. Until now, the few existing accreditation bodies, most of which are American or European, have shown little interest in South Mediterranean universities, but several universities are now considering this approach, which is much akin to "branding". By way of example, of the three main bodies that award

[65] But also, again in Egypt, different selective university programmes, or programmes leading to a double or joint degree with foreign faculties.

accreditation to a Master's degree in management or an MBA (EQUIS, AMBA, AACSB), the AACSB alone has given accreditations to South Mediterranean universities (the American University in Cairo and Bilkent University in Ankara). Yet, for private institutions that take this approach on board, obtaining an accreditation could be a lever for growth, given that the public sector has so far shown little interest.

Certainly, the key differentiating factor for private higher education is its search for collaborative partnerships with foreign universities, especially American and European, with a view to giving its degrees an enhanced social or economic value thanks to the reputation of its academic partner.

In Egypt, several universities with a foreign "branding" have been founded in the last five years: the BUE, the German University in Cairo, the *Université Française d'Égypte* and the Ahrum Canadian University. All these fall under Egyptian jurisdiction, the majority of their capital being in Egyptian hands, but they have established partnerships with universities in their partner country on the basis of specific programmes ("faculties" in the Egyptian setting in line with Anglo-Saxon tradition). In Tunisia, several private university projects also appear to wish to develop this kind of partnership (Tunis-Dauphine, Esprit, Sésame, the Mediterranean School of Business), following the example of some of the national *grandes écoles*, and without encountering any serious competition from public universities in this area.

To some extent, whilst international partnerships or accreditations are indicators of quality, the quality of programmes backed by North-South partnerships will only be confirmed when a significant number of students from "North" universities or institutions choose to study in "South" establishments. Today it is difficult to distinguish between what amounts to a marketing policy pursued by institutions in the South and East Mediterranean – in which international "branding" is undoubtedly a commercial advantage – from a will to effectively improve educational quality and teacher-student ratios. Likewise, international expansion in "new markets" has become a growth challenge for "North" institutions whose home markets have stagnated given that their rates of higher education attendance are now progressing only marginally.

The fact that the region's public universities are reluctant to develop such international partnerships and basically confine them to selective fields of study opens up a market niche for the private sector that will very likely spur its growth. This configuration is obviously in no way of a structural nature and could be countered by a more pro-active government policy promoting the provision of Master's degrees by public universities partnered by foreign universities. For the time being, it is the private universities and schools that have largely exploited this lever for growth.

- *Hosting foreign students*

The ability to attract foreign students also serves as a kind of demand-based yardstick for educational quality or returns. Certain South Mediterranean countries could in fact position themselves as hubs for the export of (educational) services, first of all to other countries in the region, or more widely to the African continent (and, for certain market niches, even to European countries).

In this perspective, almost all the private universities of the three countries studied have included in their development plans the admission of a number of students (sometimes quota-based) from neighbouring countries. In Lebanon and Egypt, it is chiefly students from the Gulf States wishing to obtain high-quality diplomas from educational institutions positioned in the top-of-the-market niche (particularly the BAU or the BUE). In Tunisia, the first private universities, notably the *Université Libre de Tunis*, have also recruited a sizeable number of students from Sub-Saharan Africa in a market niche offering medium quality education.^[66] Other private Tunisian institutions are also considering developing admission capacities for Algerian and Libyan students.

These signs of quality are in all levers not only for higher education reform, but also for the growth of private education. The capacity to obtain academic “brands”, develop partnerships and attract foreign students is a factor that contributes to improving the quality of higher education.

2.1.2. How can the economic efficiency of higher education be maintained?

Increased student numbers, in all fields of study combined, and the relative slowdown in the growth of the region’s employment can cause the economic returns of higher education to stagnate, or even decline, when no other structural changes intervene. The empirical studies presented in the first part of this book lend ample support to this observation.

To reverse this trend, the countries need to implement structural changes, unless it be deemed that the per-capita cost of financing education will also progressively decrease. This scenario, however, seems implausible and it is thus more useful to ask how the economic returns of higher education can be increased.

[66] This university has funded promotion/recruitment campaigns in the magazine *Jeune Afrique*, developing the vision of regionalised higher education. A regional clientele provides a significant portion of revenue (up to 50 per cent for certain programmes, according to partial information collected in Tunisia).

Fields of study are clearly at the heart of potential reform. A factor common to all countries in the region is the high proportion of students enrolled in social sciences and humanities programmes. At the macroeconomic level, the notion that the social returns to these programmes are less than those of science or management (the relationship between management programmes and local labour markets varies depending on the country) has not been scientifically demonstrated. Nevertheless, this distinction is much more evident at the level of individual returns, which are clearly greater in the scientific, technical, or management programmes in Lebanon or Egypt. Therefore, a converging set of assumptions suggests that a breakdown of the student population by programme is one of the causes of the relatively low return to higher education in South Mediterranean countries. A scientific approach would suppose, for example, being able to distinguish between what relates to the choice of programme (and the prospects it offers for integration into the labour market), what relates to the internal organisation of the programme (and problems with the quality of the teaching) and what relates to the individual characteristics of the students. Thus, the difference in the rates of employment and remuneration between men and women with the same qualifications obviously results in a decrease in the apparent return to a course where there are more female students. Yet, a different breakdown would most likely not change anything regarding the lower remuneration of women compared to men with the same qualifications or the lower rate of female employment. In other words, a different breakdown by programme, with an increase in the numbers of students in scientific and technical programmes, would probably produce a slight decrease in the return to these programmes, but would nevertheless suggest a rise in the overall return to higher education.

Several governments have decided to alter the distribution of their students between fields of study, but this implies, on the one hand, being able to ensure that faculty evolves in line with these reallocations and, on the other hand, mobilising additional educational resources. The timeframe for such reforms is necessarily very long, since the professional status of teachers, university admission practices and the increase of faculty in expanding programmes are all components of a higher education system requiring from ten to twenty years to evolve. This means that the practical implementation of a strategic choice to adjust the balance of fields of study will inevitably take a very long time.

Without discussing the utility of continuing to increase funding for the social sciences and humanities – which is a choice of society – we can nonetheless suggest that they be backed by state funding (by direct taxation for domestic resources or by grants in the case of external resources), as their capacity to yield an economic return higher than the cost of a loan is questionable.

It should be added that neither is this capacity guaranteed for all scientific, technological, medical and management fields, even if the labour market outcomes for these students are generally better and their salaries higher. The use of leverage for this kind of programme, whether funding be domestic or external, is therefore not to be excluded or necessarily recommended: this aspect requires a more in-depth analysis of each field of study.

2.1.3. Public/private: complementarity or substitution?

The difference between public and private education in each of the three countries is grounded in a different logic. Yet, it would be a source of misunderstanding to project the split observed in European countries onto the Mediterranean setting. In the three countries studied, the disparate growth trends in the private sector stem from conditions specific to each context.

In Lebanon, private higher education has been shaped primarily by a logic of confessional and linguistic differentiation. While it is true that the major private universities accept students of all faiths, each of them is nonetheless marked by this aspect. Instruction in foreign languages is another point of difference between the public and private sectors, the latter having more leeway to sidestep the constraints of using the national languages and, above all, to recruit larger numbers of foreign teachers.

In Egypt and Tunisia, the confessional logic is absent from private higher education systems. In Tunisia, an institution is not authorised to mention its religious affiliation, which highlights the importance that the Tunisian authorities attach to the principle of secularity, at least as applied to higher education. On the other hand, the logic of differentiation through the languages used for instruction is present in Egypt. All the universities with foreign “branding” set implicit or explicit percentage objectives for foreign professors, and even students: at the AUC, 40 per cent of faculty are American or teachers with dual nationality. In public study programmes, even selective ones, the number of foreign students is based on quotas (as the State is the sole funder of universities) and the number of foreign professors is very low.

However, it would certainly be hasty to conclude that there is a “distribution of roles” between public and private higher education, whereby the public sector delegates to the private sector the responsibility for “confessionalised” education or for instruction delivered in foreign languages. In fact, the growth of the private sector, beyond its apparent institutional justification, seems to be based rather on the existence of market niches that have been more or less abandoned by public higher education. In the case of Egypt, these educational niches (or fields of study) have led to a very significant increase in the number of students attending private universities (many

campuses are built on the periphery of Cairo). However, the size of the private sector is still small, evolving in the historical context of transition from a state-planned economy. In Lebanon, the private sector appeared earlier and is more firmly anchored in the educational landscape. The civil war and the harsh political situation in the neighbouring region has most likely led the Lebanese State to focus on priorities other than higher education.^[67]

In other words, what differentiates public universities from private ones is less the nature of their mission than the characteristics of their educational offering and its adaptation to student and labour market demands, as well as the pivotal question of their mode of financing and tuition fees. It thus seems logical that, in private higher education, companies and professional branches are more involved in defining curricular content, in administration and in the choice of programme offerings than in the public sector. Pushed to the extreme, this approach obviously runs the risk that the public sector will end up responding only to social demand and the private sector only to economic demand. None of the countries in the region are in this situation, but this theoretical scenario could nevertheless bear on how public education evolves.

2.1.4. Higher education and equity: the double paradox

Finally, beyond the problems of economic efficiency or of the return to a higher education system, it is worth recalling two important equity issues that are systematically raised by the growth and expansion of a private education sector.

The first involves the difficulty faced by the less well-off to finance three or four years of schooling after secondary school graduation, particularly in private or selective study paths that are expensive in terms of direct or indirect costs. For a student from a low-income family, there will be limited possibilities for the immediate family to save in advance and finance years of higher education. Obviously this kind of financial constraint can be alleviated by developing student loan schemes, provided the return to higher education is greater than the cost of borrowing. The notion, widespread in developed countries, that credit constraint is a secondary obstacle is manifestly untrue in developing countries, and emerging countries (Gurgand *et al.*, 2010).

All our observations point to the fact that the credit market for individuals is at best inadequate and at worst non-existent as far as the financing of higher education demand is concerned. This, moreover, is not because it is expected that higher educa-

[67] See box 1 in part 1.

tion will have poor profitability. In reality, personal loans are granted primarily to those with the best guarantees and not to the best projects. Banks reduce their risks by lending mainly to customers from better-off families. Student loans are considered as a “loss leader” product, designed to strengthen the loyalty of high-income families. This observation does not contradict the previous one, as the process of social reproduction means that these customers are more often than not from privileged backgrounds. The relative lack of maturity of the personal loan market is thus a decisive factor of inequity in the higher education system. A student who obtains good academic results but does not have a parental guarantee (or another guarantor such as the State, or a company if the student is following continuing training) can only borrow with difficulty in the countries that we studied. As far as we know, no estimate exists of default rates for student loans, except for some micro-niches in a limited number of banks and universities, which indicates that financial institutions are unprepared for the student loan market. This therefore lends support to the hypothesis that credit constraint is a major factor contributing to inequity and the restriction of demand for higher education.

The second problem relating to inequity can be summed up by this paradox: a higher education system may prove to be anti-redistributive. In other words, it can result in a transfer from the least privileged towards the most privileged. This stems from the skewed selection of students, most of whom generally come from the most advantaged social backgrounds. If the higher education enrolment rate is much greater for secondary graduates from advantaged backgrounds than for those from more disadvantaged backgrounds, public funding of higher education will almost automatically produce the anti-redistributive effects mentioned above, unless the tax rate is very progressive. This outcome has two explanations. Firstly, a student’s educational level at the time when he or she sits the secondary school leaving examination is correlated with parental income, since wealthy families invest more in their children’s education, whether directly via private spending on education (extra tuition, educational materials, language courses abroad...) or indirectly by opting to live in an area where educational provision is of high quality. The second explanation is linked to the opportunity cost of higher education, which is greater in relative terms for students from low-income backgrounds. Choosing to give up a potential salary in order to study is all the more unlikely if an individual is in a situation of relative material discomfort. In other words, the decreasing marginal utility of money means that the opportunity cost of schooling is lower for the richest, talent and the return to education being equal. Thus, without a concern for equity, there is a strong likelihood that public financing of education on a shared basis through direct taxation would be harnessed primarily by a country’s economic elite.

This situation, which is doubly detrimental to equity in higher education, calls for three kinds of response:

- On the demand side: support scholarship (total or partial) funding through subsidies and facilitate the emergence of financial markets so that disadvantaged individuals can afford the cost of their studies.
- On the supply side: *i)* design mechanisms for financing education provision that can help avoid anti-redistributive effects; *ii)* diversify supply through a more flexible range of services (distance-learning, e-learning, work-study training programmes, continuing training...).
- Upstream of any direct interventions on higher education market equilibrium that are designed to match supply/demand outcomes, *ex post*, *ex ante* interventions could also be envisaged (fiscal redistribution, reform of public primary or secondary education in order to raise the attainment levels of the lowest achieving and most disadvantaged pupils, collective or individual savings schemes...). It should be recalled that inequalities (in housing, health, access to culture) very likely persist throughout initial education, or even an individual's working life. Actions to promote social justice in higher education are therefore highly complementary to other public policy initiatives that foster a reduction of inequalities between individuals.

2.2. External financing instruments for higher education

2.2.1. Financing educational supply

Donors can support the supply of higher education in three ways: directly, through a financial intermediary, or *via* the State.

2.2.1.1. Direct financing

Direct financing of higher education institutions is not particularly complex in terms of financial techniques. In general, public universities only rarely have a status authorising them to borrow money from fund providers, except for those that have their own foundations or formal dedicated financing vehicles. This restricts their financing possibilities to state subsidies, grants from national or international donors, or loans from national banks, though this is seldom the case. For subsidy funding, the question of the economic return to the educational programme financed is of less direct consequence than for loan funding. What needs to be evaluated is thus the adequacy between the impact (social, cultural, economic) obtained and its cost.

It should be noted that many countries in the Mediterranean appear to have adopted, as more or less formal policy, the principle of funding their higher education through the tax-subsidy duo, which seems prudent in the case of systems whose economic returns are very close to the cost of loans.^[68] From a certain point of view, when the massification of higher education stems as much from a political and social choice as from a strategy of human capital investment, the tax-subsidy approach and financing choices are consistent with a rational and otherwise sustainable functioning. When public universities seek loan financing, which to our knowledge is rare, this is linked more to the need to plan for an investment, such as a construction project, and to smooth the investment cost, rather than to a leverage rationale.

For private institutions, many different financing instruments can be envisaged.

- *Grants*

It is relatively rare, and without doubt counter-intuitive, for an international donor or a State to subsidise private institutions. However, it should be noted that a growing number of developed countries are allocating grants to foreign universities in order to extend their local influence. In Egypt, for example, both the AUC and the *Université française d’Égypte* rely on grants from USAID and from the French Ministry of Foreign and European Affairs respectively. Calculating the direct return of an asset as difficult to measure as cultural presence or influence is an almost inconceivable task; thus grant funding is certainly the most obvious choice.

- *Direct loans*

For an international donor, making a direct loan to a private university is *a priori* the simplest solution. Private institutions in effect have their own resources and relatively constant revenues, which makes it easy enough to analyse their financial situation and assess their borrowing capacity and ability to repay a loan *in fine*, whether or not the loan is concessional, on the basis of the type of institution and project being funded. Yet although this kind of package is simple in principle and purpose (“develop education provision in order to contribute to instruction and job creation”), it implies overcoming two hurdles. The first is to identify the fields of study and the learning methods that will effectively lead to job creation. In other words, the cost of the loan must be less than the return – even if it is delayed – on what is essentially a human capital investment, otherwise it makes no sense to use leverage for a project that ultimately destroys wealth. The second hurdle involves

[68] See Part 1.

transaction costs. From an economic and financial point of view, a university is approximately the size of an SME in terms of the number of people it employs and its annual revenues. If the costs of processing a transnational loan operation are taken into account, only fairly large universities are likely to be able to absorb loans of the magnitude usually proposed by donors.

For example, the Facility for Euro-Mediterranean Investment and Partnership (FEMIP) of the European Investment Bank (EIB) only allocates direct loans for amounts above EUR 25 million, while the *Agence Française de Développement* and its subsidiary Proparco can allocate loans of lesser amounts. However, this type of apparently simple financing lacks depth. The International Finance Corporation (World Bank Group) has only initiated two projects of this kind over the last two years (in Ghana and Yemen) and also finances two secondary school complexes in South Africa and Nigeria, while the EIB does not appear to have supported any projects in developing countries in recent years. For its part, the AFD Group currently has two active projects, one in partnership with the *Université Saint-Joseph* in Beirut (via Proparco, for a total of USD 8.5 million for the construction of a “Technology and Health” centre) and the other with the Pontifical Catholic *Madre y Maestra* University in the Dominican Republic.

This kind of funding, which is akin to project financing, involves a grace period covering the implementation period and the time needed to achieve break-even point. On the other hand, if the donor grants some degree of concessionality, the question of additionality then arises regarding the expected development impact with respect to the financial effort made (in other words, the difference between the interest rate proposed to the university concerned and the going market rate, if indeed this exists).

Several kinds of additionality can justify the use of concessionality:

- The will to reform the instructional framework in order to make it more conducive to the graduates’ professional (and social) integration, thus meeting the objective of social cohesion.
- The financing of programmes that have delayed economic or social returns (medicine and nursing, for example, due to the length of these studies), which requires a grace period in the case of public funding.
- The development of programmes that have a strong social impact but which offer an economic return that is low or difficult to measure in the short term (environmental engineering, for example).

- A contribution towards promoting educational provision in regions that are under-equipped and lagging behind economically and socially.
- Facilitating the access of deserving students who are socially disadvantaged (*supra*).^[69]

On the other hand, the financing of educational infrastructures does not necessarily create any additionality, at least in emerging countries (or middle-income countries). Usually commercial banks are active in this market segment, which is serviced by bank departments dealing with corporate financing. However, some banks may be reluctant to directly finance private universities during their first years of existence. As in the case of an SME, the risk incurred by a lender is greater at the time of an entity's creation than once its reputation and consequently its clientele are firmly established. The maturity of the loans requested by higher education institutions (from seven to ten years) may also exceed standard bank practices, as we observed in the three countries studied.

The third explanation for the banks' reluctance is linked to the specific nature of a university. It is difficult for a lender to either seize the good that has been financed when this is real estate property (not a readily convertible asset) or to interrupt the activity of an institution that plays a major social role and lodges numerous students (at the risk of severely damaging its reputation). This is why certain banks may limit their operations to financing the land component of projects for creating or equipping institutions, in which case resale will be easier should the borrower run into insurmountable financial difficulties. In Cairo, several private universities, for example, resort to leasing arrangements to hire and/or purchase the fleet of buses needed to transport students from their homes to the campuses on the city outskirts.

[69] Some private universities can, for example, set up internal credit arrangements for needy students who do not benefit from scholarships or grants, which generally implies external concessional refinancing given the deferred repayment and the need to keep interest rates low enough to avoid excessive indebtedness when these students leave university.

Table 6 *Lebanon: examples of possible support for higher education*

	Direct loans	Intermediated loans
Type of scheme	Direct loans to private universities (<i>Université Saint-Joseph</i> , American University of Beirut, Beirut Arab University, Lebanese American University...).	Refinancing of loans granted to Lebanese universities by local banks.
Targeted objectives	Expand education provision (new programmes, infrastructures) or improve equity of access for universities that have, or are envisaging, an internal loan scheme or a financial aid scheme that can be refinanced.	Using bank intermediation does not change the targeted objectives, but the number of universities eligible for refinancing would increase (a dozen universities would be eligible, thus ensuring multiconfessional coverage).
Selection criteria	Quality of the existing programmes (job insertion rate, wages), socioeconomic background of the students whose studies are refinanced.	Selection criteria for projects or students do not need to be different. Donors should study the university refinancing applications proposed by the banks.
Advantages and disadvantages	<i>i)</i> Private universities offer reliable guarantees of efficiency; <i>ii)</i> some programmes have excellent labour market outcomes; <i>iii)</i> in an unstable country, investment in human capital, which is relatively mobile, is less risky than investment in physical capital. But <i>i)</i> the rate of expatriation will be high, associated with a socially biased selection; <i>ii)</i> a financial analysis of each university must be carried out.	This solution best covers the Lebanese geographical and religious landscape. On the other hand, banks may have criteria for selecting universities and students that differ from those of the donor; they may choose the safest risks rather than the universities that have the most impact. This “market” solution could involve asking the Central Bank for exonerations with respect to statutory reserves for the portfolios concerned.

- *Direct equity investment*

Outside of loan financing, international donors seldom make direct equity investments in private universities. At least two reasons explain this. The first relates to the amounts involved, as in the case of loans. Universities with little capital tend to strictly limit their share capital to the minimum capital required, which is too low to be of any real interest to international financial partners. On the other hand, academic partners in OECD countries are more likely to see a strategic as well as a financial interest in this type of investment.

The second brake on equity investment stems from the fact that it is difficult to value an investment in private higher education. In fact, when some shareholders (generally professors or benefactors) have no interest in either withdrawing their capital or receiving some of the profits, this puts serious limits on the possibilities of making and distributing high profits and on finding potential buyers, should a shareholder wish to exit the capital structure.

Given the above-mentioned constraints, it is clear that the direct financing of universities, through loans or direct equity investment, may respond to specific needs but it fails to cover all the financing requirements of higher education. In reality, public universities are largely excluded from this solution, as private universities may be, for reasons ranging from the sector's inherent risk to the institutions' absorption capacity.

Although not central to this report, the question of how public higher education can be funded inevitably arises. Besides mobilising national public resources, the granting of sovereign loans (or sectoral budget support) could be envisaged, in line with the rationale of sectoral assistance. The recipient government could then make transfers to private institutions (or public ones if they are autonomously managed). This mechanism would provide public authorities with an additional lever for a large-scale restructuring of the sector.

In our view, five to ten large private universities of high academic quality that are financially viable should develop in Tunisia. As the potential for private capital investors has not been clearly established, it is likely that international donors be called upon to help capitalise the sector.

However, participation in the financing pool for a higher education institution raises several problems. The first is tied to the low level of initial equity investment for university projects, which most often does not exceed the minimum threshold legally required (TND 2 million, or around EUR 1.1 million). In this scenario, the shareholding open to a foreign investor is limited to TND 700,000 (less than EUR 400,000).

On the other hand, financing needs will be greater when private universities plan to increase their capital, once they are through the stage of validating their economic model (even if their intangible assets – linked to study programme development, faculty staffing and then building up their reputation – are created progressively and thus do not necessarily require large amounts of funds). Several private universities (Esprit, Mediterranean School of Business...) have already stated their intention to launch ambitious investment programmes in order to substantially expand their admission capacities and develop new degree programmes. Given that these institutions firmly intend to keep their gearing to a reasonable level (about 50 per cent equity and 50 per cent debt), it is hardly likely that capitalisation via a second financing pool (usually larger) can be successfully completed with national investors alone (individuals, banks and foundations).

Lastly, with this type of investment, the modalities enabling investors to withdraw should be stipulated from the outset. The first successful operations in Tunisia, notably Esprit, are in fact quite original; although a leveraged management buyout (LMBO) is not inconceivable, it would be difficult to envisage the sale of a majority shareholding or an initial public offering (IPO): in fact, the economic model applied by private universities is not one of maximum profitability, but primarily one that allows the largest number of individuals access to a high quality service, which thus implies limited profitability.

2.2.1.2. Intermediated financing

One of the foremost obstacles to developing higher education is the absence or inadequacy of financing mechanisms. The above-described perspectives, based on the principle of direct external funding of institutions, provide an *ad hoc* but not systemic solution to the problem. In fact, the main justification for substituting for the role of national funders is their eventual inefficiency or absence. In this case,

however, it is advisable not to disregard the support of local financial institutions when they begin to operate in untapped market segments. International funding initiatives can in fact be all the more effective if they help foster the establishment of specialist local educational financing institutions that could subsequently take over on a permanent basis.

- *Private intermediation*

Participation in investment funds or the refinancing of bank portfolios that target universities can help achieve broadly the same objectives as those mentioned earlier. However, when funds transit *via* an intermediary, several differences are worth noting.

First of all, it is clear that the constraint imposed on international donors to finance only large institutions is alleviated when a local financial intermediary has the capacity to address small and medium-sized institutions. Certainly, it is easier and less costly to monitor a funding project in the country concerned than from abroad, since the cost structure of a financial institution in the developing world generally allows smaller projects to be processed.

The second advantage is tied to the hope that, if a financial institution in a less developed country successfully carries out an operation partnered by an international donor, it will have a good chance of extending its development in the higher education sector. In other words, it may be reasonably hoped that there will be a greater multiplier effect from the donor's point of view when the purpose of an intervention is to demonstrate the viability of a higher education funding model.

On the other hand, intermediation further complicates the achievement of social objectives (as two contractual frameworks are required for these objectives: first, between the donor and the financial intermediary and, then, between the intermediary and the final beneficiary): this implies that the use of state concessionality needs to be more fine-tuned. To return to the social objectives justifying the use of subsidies – that is, the will to promote the integration of graduates in the labour market (consistent with an objective of social cohesion), funding for study programmes with delayed economic or social returns or a strong social impact, support for under-equipped regions and assistance enabling disadvantaged students to access higher education – it becomes relatively clear that the final beneficiaries targeted by this financing do not necessarily match the “clientele” that an intermediary will seek to gain as a prime target. In other words, the danger is that the financial intermediary will make no particular effort to extend its presence into new untapped market niches, but will rather seek to reap the fruits of lower-cost external financing, while

also reducing to the maximum any real risk-taking. This thus supposes that international financing must be conditioned on the achievement of specific results: for example, by defining precise parameters for the portfolios of refinanced institutions in terms of student distribution by programme, by region, or by socioeconomic background. It would in fact be “rational” from the financial intermediary’s point of view to fund institutions and then, in order to improve their own financial situation, require that the institutions reduce to a minimum the number of students who are disadvantaged or enrolled in programmes with a low return.

From a more operational angle, when a concessionary credit line is offered to a bank in a developing country to enable its participation in the financing of higher education institutions, this implies that an *ex ante* analysis is required to define *a priori* the universities, programmes or students that are the potential final beneficiaries. It should be noted that concessionality can take the form of a soft loan (at a lower-than-market rate), but also a guarantee (by charging less than the estimated risk and credit margin), or even equity (by requiring lower level of profitability than the sectoral or national norm). All the arguments raised above therefore hold good, whatever the financial product used, and regardless of whether the intermediary is a bank (for example for a credit line), an investment fund (for equity) or a guarantee fund.

Since many banks in the region have voiced their apprehensions with respect to student loans or the financing of education, it would doubtless be useful to create – for example within the framework of the Mediterranean Union – a guarantee fund backed by grants to introduce new modes of financing higher education. The rationale behind the European Union’s Neighbourhood Investment Facility (NIF) could be further extended to social sectors, with the idea of keeping *in fine* substantial financial leverage but using grant funding for the launch phase of new financial services.

- *State intermediation*

Public higher education accounts for the largest share of the student population: 50 per cent in Lebanon and nearly 98 per cent in Egypt and Tunisia. It would therefore be illusory to imagine that all of the challenges facing the MENA countries could be met simply by private sector growth and the knock-on effect of competition on the public sector.

Sustainable improvement of public higher education will remain a key condition for the success of the system as a whole. The role of the State, or of state intermediaries likely to participate in funding universities, is therefore decisive from a systemic standpoint. However, state funding of public universities is a rational move only if the recipient ministries integrate these additional resources into a strategy for

reform. In fact, the tendency observed over recent years, and fairly commonplace across the region, has been one of a quantitative growth that has been unable to curb the rise of unemployment among young graduates. As a result, what is at stake today is well and truly “managing massification”.

Among the structural reform orientations that would require in-depth analysis and certainly substantial investment, particular mention should be made of:

- the need to improve the equity and quality of the education system upstream of higher education;
- the need to increase the quality of the instructional framework (by also involving players from business and industry);
- the redeployment of a significant fraction of students towards fields of study that have more successful labour market outcomes;
- the setting up of skills upgrading courses to deal with the existing stock of graduates who have no professionally oriented qualifications;
- the internationalisation and academic “branding” (especially international) of public universities.

All of these reforms, which in the short and medium term require financial inputs, must ultimately contribute to improving the economic and social returns of the entire higher education system. This kind of reform agenda may be funded through sectoral budget support or sovereign loans, the former being *a priori* more appropriate than the latter for reforms that yield returns only after many years (not before ten years, for example) and which require greater donor involvement in defining the sectoral strategy being funded.

2.2.2. Financing demand

There are also three types of shortfall in demand: demand can be generally insufficient on all counts; it can be insufficient with respect to a sub-category of the population (from a social or geographical point of view) and thus exclude students from disadvantaged backgrounds or regions unable to afford the costs of higher education; and it can be insufficient for specific study programmes, thus becoming “distorted” with respect to labour market needs.

2.2.2.1. Should higher education studies be encouraged?

There is no single response to the issue of increased demand for higher education. All depends on the country’s level of development and the previously observed enrolment rate for higher education. In 2007, the enrolment rate for higher education

in Tunisia reached 31 per cent, compared to 35 per cent in Egypt and 52 per cent in Lebanon.^[70] These rates are very close to those in OECD countries (45 to 50 per cent), despite their GDP per capita being four or five times lower. Two major features of the countries studied partly explain this situation: the fact that their public higher education systems are almost totally free and not very academically selective; and the high rate of youth unemployment affecting graduates and non-graduates, which reduces the opportunity cost of higher education.

In this setting, less priority is given to increasing the student numbers than to improving the quality of existing programmes or the access to the most costly programmes for the most disadvantaged populations. In real terms, the three countries provide generalist public instruction giving access to higher education, but this goes hand in hand with limited levels of achievement, and selective public or private programmes that presuppose having substantial financial resources.

Box 6 *The training of nursing staff in Egypt*

Egypt finds itself in a paradoxical situation, as at the same time there is not only a large need for nursing staff but also substantial in-migration of nursing professionals from Asia (especially the Philippines). This is the combined result of three key factors: *i)* the rather poor social image of the nursing profession (and nursing assistants); *ii)* the high cost of the higher education studies leading to these professions; and *iii)* the absence of loan schemes enabling needy students to borrow in order to finance their studies. As a result, rich families prefer to enrol their children in other programmes, while those from poorer backgrounds find it harder to access higher education, be it private or public.

The Egyptian financial sector still lacks depth and maturity as regards personal credit and is therefore unable to offer financial products that would fill this gap. The privatisation of many Egyptian banks, which has happened only recently, and the ensuing creation of retail banking departments have not yet managed to drive the sector beyond the stage of consumer credit or personal loans (with a guarantee). The local banks also seem less advanced in their thinking on student loans than in Lebanon or other emerging countries.

...

[70] Based on WDI 2009. National data show slightly higher rates, notably in Tunisia.



To develop widespread personal credit, banks need to be able to establish a credit history for customers (generally beginning with collateral-backed loans) in order to measure the average default rates for those of their products that require immediate repayment, before going on to develop a more mature student loan offering. In fact, student loans are not backed by collateral and automatically involve some degree of repayment deferment if the student is studying full time.

Consequently, it is still premature to envisage creating a “conventional” student loan (with no collateral and deferred repayment of the principal). This type of product will probably only be operational in four to five years’ time and, in all events, will not cover the less privileged populations. Any financial package therefore needs to dispel uncertainty concerning either the guarantee (by finding collateral or a guarantor backed by grant funding) or the employment rate and the post-graduation “starting salary”, and be linked to schemes guaranteeing employment or a direct deduction from the salary.

In the above example of nursing, a highly integrated package would in fact be possible for students. For example, external concessional funding could be allocated to hospitals to prefinance the training. The hospitals would provide the student with a guarantee of employment along with the certainty of receiving a salary after graduation. A participating bank would grant a student loan and, if need be, negotiate with the institution a 10-15 per cent reduction in tuition fees on the grounds that loan repayment is guaranteed by the bank.

This type of system is ultimately self-sustaining thanks to loan repayments from previous graduate recipients who have successfully entered the labour market. It does, however, suppose donor intervention to fund the personal loan grace period (at least three to four years) that is necessary for a loan portfolio of this type to become fully operational. It should be noted that, in Egypt, bank customers are not legally authorised to borrow in foreign currency if they have no foreign currency income. Consequently, if a loan from an external donor is not in local currency, it can only be channelled to a bank that has foreign currency resources (which is possible) or to a list of hospitals with foreign currency revenues. This legislation on foreign currency borrowing is particularly restrictive and the question may be asked as to the relevance of a system that requires each bank to match resources and employment at customer level, rather than at the level of the customer’s portfolio. This would carry virtually the same risk but would also open up new financing possibilities for economic players.

This unequal access to top-performing programmes (or those with the highest employability rates) may be due either to high tuition fees (Lebanon, Egypt) or to the extra financial investment required to enrol in these programmes (enrolment in a private secondary school, or residence in a district that has the best quality secondary school, extra tuition...), factors that largely lock out the poorest populations. The absence of student loan schemes is thus an insurmountable hurdle for families who cannot afford to enrol their children in selective programmes. Yet, it should be pointed out that, in the MENA countries, encouraging a broad-based demand does not currently figure as a priority, but this demand should increase considerably over the next five to ten years.

In other settings or regions, stimulating the demand across all social classes or all fields of study makes more sense. In South Africa for example, rapid economic growth (particularly of high value-added services) and the “brain drain” towards the Anglo-Saxon OECD countries (Australia, New Zealand, United Kingdom, United States) have created a significant shortage of managerial staff. It is consequently vital to promote access to university beyond the most advantaged segments of the population, who in any case enrol automatically. This responds to the need to dissuade students from cutting short their studies in order to find employment and earn an immediate salary sooner. It also provides a solution for the middle classes, who cannot afford the high tuition fees even in public higher education. As a reminder, public higher education is not necessarily synonymous with low tuition fees and funding universities through taxation is only one way among many to finance higher education. When the demand for higher education is insufficient overall, it seems useful to set up broad-based, untargeted financing for students.

Several financial schemes can stimulate demand:

- Grants or concessional loans to a State to replenish public scholarship funds, partial scholarships and student loans (also concessional). In general, scholarships are a sub-optimal financing tool, since the State bears a 100 per cent of the cost of schooling, even though higher education investment yields a return (which admittedly may be delayed) allowing the funder to recover all or part of its initial input. By providing greater financial leverage, partial scholarships or concessional loan mechanisms provide funding for higher numbers of beneficiaries and avoid creating the unfair distortions that occur when thresholds are fixed to distinguish the students eligible for scholarship from those who are not. Table 7 shows that it is in the State’s interest to establish a student loan system. The example applies to a three-year study path, with each year costing 100. If fully financed by a scholarship, the cost of this period in net present value (NPV) is 285.9 at a 5 per cent discount rate. On the other hand, a zero-interest loan mechanism (the State pays for the student’s years of study, and

the student repays the cost over 6 years once his or her studies are completed) will cost the State only 55.8 in NPV, which represents 19.5 per cent of the cost of financing free education (or a full scholarship). It should be noted that, from the standpoint of an international donor, a zero-interest loan scheme can be backed either by a grant or a concessional loan, which is the sole funding solution should a State be unable to access financial markets for a time, or have access only at an excessive cost.

Table 7 *Theoretical cost of government-funded schemes*

	n	n+1	n+2	n+3	n+4	n+5	n+6	n+7	n+8	Total
Cost of studies	100.0	100.0	100.0							300.0
State financing of scholarship	100.0	100.0	100.0							300.0
Cost to the State of the scholarship (NPV)	100.0	95.2	90.7							285.9
State financing of a zero-interest loan	100.0	100.0	100.0	-50.0	-50.0	-50.0	-50.0	-50.0	-50.0	0.0
Cost to the State of the zero-interest loan (NPV)	100.0	95.2	90.7	-43.2	-41.1	-39.2	-37.3	-35.5	-33.8	55.8
Discount rate	5%									

Source: Authors' calculation.

- Grants or concessional loans to a non-sovereign institution. There is no obligation for a government to operate these schemes directly. The allocation of student loans can be outsourced to universities, provided that they have the authority to levy tuition fees from the first year or to set up internal loan schemes. It can also be entrusted to more conventional financial institutions (microfinance institutions or banks, or even social funds), which will need to receive adequate public resources to cover operational costs.
- The government can also create a scheme under which students pay no tuition fees during their years of study. In this case, the financial equilibrium of the scheme is safeguarded by applying a higher rate of income tax for students from public higher education, relative to individuals who did not attend university or who went

through private higher education. This kind of scheme can be crafted so that the higher tax rate only applies above a certain level of wage income. This can mitigate the dissuasive effect that deferred repayment not contingent on successful integration in the labour market would have on the pursuit of schooling. Australia, the Netherlands and the United Kingdom have implemented this type of policy tool in recent years. Rather than raising tuition fees, this system prevents those students with limited personal or family resources on leaving secondary school and limited access to credit, from being excluded from higher education, if indeed they wish to take on a debt. It is thus the government, on a shared-cost basis, that cushions the risks inherent to schooling (academic failure, negative labour market outcomes), while at the same time limiting the disincentives for individuals to continue their studies and levying additional resources.

Alternatively, a government can decide to raise the price of tuition while at the same time introducing a deferred tax credit, through a mechanism similar to the above solution.

All these mechanisms lead to a situation in which education costs are no longer shared, at least relative to a baseline situation where higher education is funded through taxation. The shift away from the cost burden being borne by taxpayers can be viewed from different angles. For some, the fact that each individual bears part of the cost of his or her studies is synonymous with a privatisation of the higher education system. This can lead to perverse effects such as fostering a preference for programmes with a high, short-term individual return over programmes with a lower individual return or a delayed return (medicine), or over programmes with a social return but little in the way of a private return (teaching). Another perverse effect may be a decline in the demand for higher education, since collective funding ultimately means that those who do not study are also made to pay. For an individual, it is more advantageous to study when higher education depends in part on collective funding rather than on exclusively private financing (as not everyone continues their studies). For a government, sharing the financing of higher education therefore only makes sense in two situations: either the social returns are higher than the private returns and it is thus logical for a society to invest in higher education so as to make it more appealing; or there is no credit market and government financing makes it possible to avoid excluding *a priori* the most disadvantaged students.

Conversely, the advocates of a system in which funding is only partly shared will see this as a means of staunching the huge flow of students into programmes offering poor employment prospects (even though income-contingent repayment sets aside this criticism) or of countering the paradox whereby shared financing of higher

education seemingly creates an anti-redistributive public service insofar as it chiefly benefits middle- and upper-class children. These children enjoy easier access to university and thus have their studies financed by society as a whole, including the most disadvantaged social classes, whose children very rarely have access to higher education, but who, as taxpayers, nonetheless contribute to its funding.^[71]

Box 7 *The EduLoan scheme*

In South Africa, tuition fees are high, even at public universities. EduLoan – a micro-bank that operates on the lines of a specialised microcredit institution – offers loans at moderate interest rates to students and their parents. The principle is as follows: EduLoan directly transfers to the university the tuition fees of those students who have taken out a loan under the scheme. The students then reimburse EduLoan over relatively short periods (from 12 to 24 months). The universities, which view the scheme as a means to avoid the risky job of managing loan defaults, grant various payment facilities to EduLoan. The students, who thus benefit from rates that are 10-15 per cent lower than those offered by other credit institutions (often in the consumer credit business), avoid interest rates that are close to usury. A study evaluating the performance of EduLoan and conducted jointly by the Paris School of Economics and the AFD Research Department (Gurgand, Lorenceau and Mélonio, 2010 *op. cit.*) concluded that this innovative loan scheme was indeed useful, as EduLoan operates in a market niche untapped by other banks and thus enables its beneficiaries to substantially better their chances not only of attending university but also of succeeding in their examinations. This example shows that in a country like South Africa, even though it is highly financialised and has had a well-established higher education system for decades, many potential students are facing a stringent and insurmountable credit constraint with respect to accessing higher education.

2.2.2.2. A targeted stimulation of demand

The above lines of thinking show that policies to encourage the demand for higher education are ill-suited to situations where education is in excessively short supply. This then creates the need to envisage ways to stimulate demand in sub-segments, with a focus on two types of initiative that match two types of objectives: economic efficiency and social justice.

[71] See the paper from the Paris School of Economics (Part 3).

When the demand for higher education is sufficient overall but presents gaps in certain fields of study, a targeted demand stimulus can be envisaged. This means, for example, establishing a system of zero-interest loans for programmes where demand falls short of government objectives. It is even possible to introduce negative-interest loans or tax credits, providing that repayment is not only deferred but also contingent on finding employment and earning a salary above a minimum threshold. This will be particularly suited to countries where the tuition fees for high-return programmes is expensive, either because private higher education is well developed there or because the public sector charges high tuition fees for higher education. A negative interest rate in fact comes down to combining a loan with a partial scholarship, insofar as the loan amount reimbursed is ultimately lower than the tuition fees.

If the objective is greater social cohesion, concessional refinancing schemes can be contingent on the socioeconomic background of students and not on their choice of programme. This enables deserving secondary school students who may have to interrupt their studies for financial reasons to continue their schooling. Setting up needs-based refinancing schemes to fund the higher education demand and which operate through financial institutions implies overcoming two obstacles: generally speaking, financial intermediaries have scant appetite for targeting risky “customers”, as their normal business practice involves avoiding this type of customer; moreover, and irrespective of the interest rate charged to borrowers, a mechanism that is ultimately akin to a loan may from the outset represent an excessively high degree of uncertainty for a traditional credit institution. This second point is even truer for banks in middle-income countries as they are not used to granting loans without some form of collateral.

The first obstacle can be overcome by setting up lines of credit at below-market rates, which would imply for example that a bank or micro-finance institution refinance a student loan portfolio on softer terms than those normally required for loan approval. However, the second obstacle may call for the introduction of a guarantee for the portion of the portfolio that is refinanced by an external player. Banks are reluctant to agree to the launch of a new “product” (in this case a student loan) for a new clientele (students from disadvantaged backgrounds) without knowing in advance the likely default rate on their portfolio. A partial portfolio guarantee can encourage a financial institution to commit to loans for students whose income is below a certain level by enabling it to focus on just one business (“making a profit margin and distributing credit”) rather than two: it cushions the risk linked to assessing customer creditworthiness. However, it does not completely eliminate this risk since a guarantee is obviously never total and most often covers no more than half of the default.

In the case of Lebanon, which has a mature but expensive system of private higher education as well as relatively sure labour market outcomes for graduates from the best universities, and where student financing mechanisms are still underdeveloped, this type of dual mechanism (concessional loan and guarantee) would most likely ease the difficulties faced by students from low-income backgrounds in accessing better prospects at university and in their working lives.

Although these reflections on the perspectives of funding higher education supply and demand are based on an analysis of the experiences and trajectories of three countries, they raise issues common to most South and East Mediterranean countries and, by extension, to many middle-income countries.

References

- ACS (2007)**, *Statistical Yearbook 2007*, African Centre for Statistics, Beirut.
- ASSAAD, R. (2007)**, *Labor Supply, Employment and Unemployment in the Egyptian Economy*, Economic Research Forum Working Paper No. 0701, Economic Research Forum, Cairo.
- AUBOURG, M. (2007)**, *Une revue des déterminants du chômage des qualifiés dans la région MENA*, Report, Agence Française de Développement, Paris.
- BARRO, J. and J.W. LEE (2000)**, *International Data on Education Attainment Updates and Implications*, Working Paper No. 7911, National Bureau of Economics Research.
- BEINE, M., F. DOCQUIER and H. RAPOPORT (2008)**, "Brain Drain and Human Capital Formation in Developing Countries: Winners and Losers", *Economic Journal*, 118, pp.631-652.
- BIRDSALL, N. (1996)**, "Public Spending on Higher Education in Developing Countries: Too Much or Too Little?", *Economics of Education Review*, Vol. 15, No. 4, pp.407-419.
- COURBAGE, Y. and E. TODD (2007)**, *Le rendez-vous des civilisations*, Collection la République des idées, Seuil, Paris.
- DOCQUIER, F. and K. SEKKAT (2007)**, *Brain Drain and Human Capital in the MENA*, Working Paper, Agence Française de Développement, Paris.
- DYER, P. (2005)**, *Disponibilité de main-d'œuvre, chômage et création d'emplois dans le Maghreb*, World Bank, Washington, D.C.
- FARGUES, P. (2005)**, *Migrations méditerranéennes*, Robert Schuman Centre for Advanced Studies, European University Institute, Florence.
- GIRET, J.-F. and P. MAALOUF (2009)**, *Rapport sur les systèmes d'enseignement supérieur en Tunisie, au Liban et en Égypte sur la base d'une grille d'indicateurs*, IREDU/AFD, Paris.
- GURGAND, M., A. LORENCEAU and T. MÉLONIO (2010)**, "Credit Constraint and Higher Education in South Africa", AFD-PSE Working Paper (to be published).

INTERNATIONAL LABOUR OFFICE (ILO) (2004), *World Employment Trends*, International Labour Organisation, Geneva.

INTERNATIONAL LABOUR OFFICE (ILO) (2008), *World Employment Trends*, International Labour Organisation, Geneva.

METGE, J. (2008), "L'insertion professionnelle des diplômés de l'enseignement supérieur agricole tunisien. Le rôle des acteurs du dispositif", 2nd International Conference of the FAR Network, 19-23 May 2008, Tunis.

<http://www.far.agropolis.fr/telechargement/compte-rendu/tunis/Metge%20Jean%20Tunisie.pdf>

MINISTERE TUNISIEN DE L'EMPLOI ET DE L'INSERTION PROFESSIONNELLE DES JEUNES and WORLD BANK (2004), "Dynamique de l'emploi et adéquation de la formation parmi les diplômés universitaires", *Rapport sur l'insertion des diplômés de l'année 2004*, Republic of Tunisia, Tunis.

<http://siteresources.worldbank.org/INTTUNISIAINFRENCH/Resources/Dynamique.de.lemploi.pdf>

WORLD BANK (2007), *World Development Indicators*, World Bank, Washington, D.C.

WORLD BANK (2008), *The Road not Traveled: Education Reform in the Middle East and North Africa*, World Bank, Washington, D.C.

WORLD BANK (2009), *World Development Indicators*, World Bank, Washington, D.C.

Theoretical and Empirical Contributions

Part 3

The Relationship between Higher Education, Growth and the Labour Market in Middle-Income Countries

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Introduction

In a knowledge society, the general consensus is that education, and especially higher education, make a major contribution to economic growth. Economic theories about the education-growth relationship at the macroeconomic level or about the education-labour market relationship at the microeconomic level amply justify the finding that, for individuals and governments alike, investing in education *a priori* is always profitable.

This paper sets out to examine this relationship in middle-income countries, with particular focus on several countries in the MENA region. Beyond the overall findings, which appear to justify investment in higher education, several questions arise. Does the relationship apply across all countries irrespective of their level of economic development or labour market structure? Does it depend on past investments, on how these were made and on the ways in which graduate supply and demand are regulated? What kind of impact can trade-offs between educational quantity and quality have on returns? Do these returns also vary according to the choices made regarding education levels (primary, secondary or higher), the type of education (general or vocational) or the field of study?

To answer these different questions, this paper makes a broad survey of the literature on these topics. The first section revisits the works on the wage returns to education with particular emphasis on middle-income countries and on the role of higher education. The second section offers a more macroeconomic explanation of the education-growth-labour market interrelation. The third section focuses on the studies and research conducted in MENA countries and, more specifically, in Egypt, Lebanon and Tunisia.

3.1. The returns to different levels of education in middle-income countries

3.1.1. *Investment in education is always profitable but returns decline when educational supply expands*

Since the 1960s, the economic importance of educational investment has largely been underpinned by the works of the pioneers of the human capital theory (Schultz, Denison, Becker and Mincer). Since Mincer's work (1958), measures of the returns to education (Becker, 1964)^[72] have laid the ground for an abundance of econometric literature. Even though methodological and theoretical aspects are still subject to much debate, estimated rates of return to a year of schooling now exist in most countries and regions of the world. Psacharopoulos and Patrinos' (2002) paper, which revisits notably Psacharopoulos' earlier works, presents a panorama of results for the estimated private and social returns to education over the last forty years for a large number of countries. In their general conclusion, these authors recognise the validity of the human capital theory: investment in education is just as important as investment in physical capital. They emphasise that education is undoubtedly profitable at the microeconomic level: certainly, their compilations of related studies show results that are convergent and robust enough to warrant attributing a large role to education in income growth.

[72] Becker posits that wage differentials between individuals reflect different levels of individual productivity, the levels themselves being linked to an unequal acquisition of human capital. Investment in human capital is offset by the future income stream that it will generate. This approach leads him to propose a calculation of the rate of return to investment in education that is similar to the return on any other investment. Mincer (1974) operationalised the method for calculating rates of return to education at the microeconomic level. The "Mincer equation" expresses the logarithm of an individual's earnings as a linear function of the individual's years of schooling. The return to an additional year of schooling is then measured directly by its marginal effect on earnings.

Table 8 *The coefficient on years of schooling: rate of return, regional averages*

Region	Mean per-capita GDP (USD)	Years of schooling	Coefficient
Sub-Saharan Africa	974	7.3	11.7
Latin America	3,125	8.2	12.0
Asia	5,182	8.4	9.9
Europe, Middle East & North Africa	6,299	8.8	7.1
OECD	24,582	9.0	7.5
World	9,160	8.3	9.7

Source: Psacharopoulos and Patrinos (2002).

Table 9 *The coefficient on years of schooling: mean rate of return*

Per-capita income group	Mean per-capita GDP (USD)	Years of schooling	Coefficient
High income (\$ 9,266 or more)	23,463	9.4	7.4
Low income (\$ 755 or less)	375	7.6	10.9
Middle income (up to \$ 9,265)	3,025	8.2	10.7
World	9,160	8.3	9.7

Source: Psacharopoulos and Patrinos (2002).

On average, the private rate of return to a year of schooling is around 10 per cent (Table 8). However, this figure varies according to the geographical region: it is higher in Sub-Saharan Africa and in Latin America (around 12 per cent) and lower in OECD countries or in the non-OECD European, Middle East and North African country group (around 7.5 per cent). Overall, the return to schooling is generally the lowest (7.4 per cent) in rich countries, and higher in the poorest countries. Moreover, Psacharopoulos and Patrinos observe that, over the last 12 years, private returns to schooling have fallen by 0.6 per cent, whereas the average schooling levels have increased. They conclude from this that, in line with the theory of diminishing

returns, and all other things being equal, increases in the supply of education lead to a slight drop in the wage return to schooling. Education nonetheless continues to have a positive return in all countries, but this is slightly lower when education is widely available.

In pragmatic terms, a large part of the empirical studies on microeconomic returns estimate a return to the number of years of schooling irrespective of the level of skill that the students actually obtained. Two kinds of return are calculated: the private rate of return to investment in education and the social return. The first corresponds to the benefits that an individual effectively gains as an increment in earnings relative to the costs of the educational investment. Usually, these studies use after-tax wage income to calculate such benefits. Social return implies a rationale that no longer involves individual investment. It concerns society as a whole, with the government-borne costs of education being compared against the benefits that a government can gain from education.

In the literature on private returns, the question of differing rates of return depending on an individual's level of education soon arose. Thus, the return on investment in primary or secondary education, in low- and middle-income countries, is not necessarily identical to the return to higher education if graduate supply or demand is not the same. The tables below report the results of Psacharopoulos and Patrinos (2002), who calculate the private returns to investment in education according to the level of education for the different regions, based on data from 42 countries.

Table 10 *Private returns to investment in education by level, regional averages (%)*

Region	Primary	Secondary	Higher
Asia	20.0	15.8	18.2
Europe, Middle East & North Africa	13.8	13.6	18.8
Latin America & Caribbean	26.6	17.0	19.5
OECD	13.4	11.3	11.6
Sub-Saharan Africa	37.6	24.6	27.8

Source: Psacharopoulos and Patrinos (2002).

Table 11 *Private returns to investment in education by level, averages by per-capita income group (%)*

Primary	Primary	Secondary	Higher
High income (\$ 9,266 or more)	25.6	12.2	12.4
Low income (\$ 755 or less)	25.8	19.9	26.0
Middle income (up to \$ 9,265)	27.4	18.0	19.3
All countries in the world	26.6	17.0	19.0

Source: Psacharopoulos and Patrinos (2002).

Tables 10 and 11 show clearly that the wage returns to higher education are very high (26 per cent) in low-income countries, compared to rich countries where it is two times less (12 per cent). In addition, compared to other levels of education, higher education appears to offer lower returns than does primary education, but higher than those for secondary education. This observation is valid for most of the regions and groups of countries ranked by income, except for the non-OECD Europe/Middle East/North Africa region where the return to higher education is the highest.

However, other studies demonstrate a higher return to higher education compared to the other levels of education. Carnoy (1995) observes that during the 1990s in many middle-income countries as well as in OECD countries, the rates of private return to higher education tended to exceed those to primary and secondary education. For example, in Egypt (in 1998) they are 9 per cent for higher education against 5 per cent and 6 per cent respectively for primary and secondary education. The finding is similar for Morocco (in 1999) and Jordan (in 2004), with the returns to higher education standing at 9 per cent in both countries against 5 per cent and 2 per cent for primary education and 4 per cent and 8 per cent for secondary education. Carnoy nevertheless shows that the returns to higher education are higher in Latin America and South-East Asia than in the Middle East countries.

A more recent study, which uses a slightly different estimation method, shows that in a good many middle-income countries the rates of return to higher education are higher than those to primary or secondary education. Patrinos *et al.* (2006) give estimates of the private returns to education by level of education. Using a different approach from Mincer's earnings function,^[73] they postulate that returns to education can be

[73] This function involves estimating the returns to education for different categories of population on the basis of the wage distribution (quantile regression analysis).

very different depending on an individual's occupation and earnings. They show in effect that individuals with the highest earnings also have higher rates of return, especially for higher education. In addition, irrespective of the quantile, the wage returns to higher education in most of the Latin American and Asian countries studied^[74] are systematically higher than those for other educational levels. Nevertheless some countries, such as Bolivia, China, Colombia and Venezuela, are exceptions to this pattern.

The debate on the importance of private returns to higher education as compared to other levels does not yet appear to be closed. The findings of current studies diverge, even within groups of countries that have comparable incomes. Using estimations carried out for the World Bank in 1993, Hossain (1997) finds that primary education in China has higher returns than the other levels: the private return to education is 18 per cent for primary, 13 per cent for secondary and 15 per cent for higher. After combining the results of several studies, Carnoy (1995) finds that in India the wage return to higher education tends, with time, to outstrip that of primary education. A study conducted by Asaoka (2006) in 16 Indian states using 1993 data demonstrates a positive and statistically significant correlation between the wage return to higher education and per-capita income. This implies that the richer the State, the higher the private return to higher education. It should be noted, however, that the study of Fleisher and Yang (2004) draws the opposite conclusion using Chinese data from the 1990s.

[74] In this study, sixteen Latin American and Asian countries were analysed, ten of which are ranked by the World Bank as middle-income countries. The estimates are based on a quantile regression analysis. The authors calculate the private rates of return for six income groups (the 10 per cent with the lowest income, between 10 per cent and 25 per cent, between 25 per cent and 50 per cent, between 50 per cent and 75 per cent, between 75 per cent and 90 per cent, and the richest 10 per cent). The data used for the calculations have been taken from various national or international surveys (Living Standards Measurement Survey 2002 for Mongolia; Economic, Population, Nutrition and Health Survey 2000 for China; Encuesta Permanente a Hogares 2003 for Argentina, etc.).

The question of the causal relation between education and earnings is a highly controversial topic among economists. Some have contested this causality, asserting that the returns to education show nothing more than a simple correlation between these two variables. The analysis of returns to education is confirmed by quasi-experimental studies conducted in certain OECD countries. For instance, after 1950, the Canadian provinces raised their minimum school-leaving age at different times. This regional time variation in enforcing these educational reforms made it possible to design a measurement protocol. According to Oreopoulos' calculations (2006), the effect of lengthening compulsory education corresponds to wage returns of the order of 12 per cent per additional year of schooling. In Sweden, a major educational reform was launched in 1947: a nationally unified curriculum of basic compulsory education was extended from 6 to 9 years. In fact, only a third of the municipalities adopted this curriculum between 1949 and 1962. Subsidies were given to poor families to compensate for the opportunity cost of removing their children from the labour market. Meghir and Palme (2005) study the 1948 cohort in order to evaluate the wage return. The effect on earnings is very strong especially for high-ability children from low-income families (the return is 13 per cent per additional year of schooling) but there is no change for affluent families when schooling is prolonged. This links up with research studies at the crossroads of sociology and economics, in which the return to education is related to the structural transformation of employment during a phase of economic growth that allows the democratisation of access to education (Goux and Maurin, 1995).

3.1.2. Recurrent debate on the methods and data used to estimate returns to education

Comparative studies on returns to education generally present estimates by different researchers, using surveys and methodologies that often vary from one country to another. This raises the question of the extent to which these estimates are comparable.

Psacharopoulos and Patrinos (2002) compiled research results on the returns to education in more than 40 countries between 1965 and 1998. For estimates using years of schooling as an explanatory variable, the data involve 42 countries. For estimates based on the level of education, the data cover 98 countries. Psacharopoulos and Patrinos point out that they carefully selected the studies from among a larger number of related studies on the basis of their comparability. They also observe that studies on returns to education have mushroomed since the 1980s and 1990s, but

that the methodologies used do not always allow for reliable comparisons. The authors recognise that, despite the compilers' efforts, such comparisons fail to avoid certain biases, usually related to two factors: the data sample coverage and the methodology used.

In an ideal world, the return to education would be calculated on the basis of a representative sample. In practice, however, this is more the exception than the rule. This is particularly troublesome when the estimates obtained are based on a survey of companies, and not households, as the sample can easily be biased for several reasons: *i)* for the sake of reducing costs, interviewers often prefer to include large companies with a high number of staff; *ii)* in many cases, the questionnaire is completed by the human resources department rather than the individual employee; and *iii)* these surveys are by and large carried out in urban areas.

A recurring issue is whether or not to include civil servants in the sample. Some consider that their presence can skew estimates, as civil service wages do not normally reflect market wages. Yet, in many countries, the State is the main job provider for higher education graduates. Despite their eventual biases, these estimates are not completely unhelpful. For Psacharopoulos and Patrinos, it is important to be able to estimate the returns to education in public sector employment, as this illustrates the way in which the State uses the returns that this employment offers to encourage individuals to invest in their education.

There is also a great deal of discussion about methodology. The effects on wages are often confused with the returns to education estimated using the "Mincerian" semi-log earnings function (this estimation method had already been proposed by Becker and Chiswick in 1967). However, many researchers find it more convenient to use the raw coefficients of education-related variables derived from earnings estimates as the pure effects of returns to education, without correcting for effects specific to wage structure (Psacharopoulos and Patrinos, 2002, p.3).

Added to this is the fact that, despite Becker's (1964) warning, many studies introduce many endogenous variables into the variables that explain the earnings function and, more specifically, the individual's occupation. In this case, part of the effect of education on earnings is captured by these variables.

Psacharopoulos and Patrinos (2002) fully recognise the possible biases created by the comparisons of different studies. In seeking to solve this problem, they find that the studies on twins (Ashenfelter and Krueger, 1994; Ashenfelter and Rouse, 1999) and other studies based on natural experiments are the most robust. They thus conclude that the average private rate of return to investment in education in the

United States is of the order of 10 per cent. According to approximate estimates, the social rate of return seems to fluctuate at around 8 or 9 per cent, and be slightly higher for countries with a lower per-capita income than that of the United States. If these estimates are examined against those obtained by comparing different studies conducted in various countries, the overall rate of return is the same – that is to say, around 10 per cent.

Some economists have developed meta-analyses of the rates of return to education in order to explore rate-of-return variations between different countries on the basis of country-specific characteristics. This is the approach used notably by Allen (2001), who seeks to explain why the rates of return vary so much across countries and levels of education. By partly avoiding methodological questions about the quality of the data collected,^[75] he analyses the rates of return to education using variables drawn from the socioeconomic and educational context of each country. These notably include per-capita GDP and its square, the GDP growth rate, the rate of primary schooling and its square, the rate of secondary schooling and its square, two indicators relating to political and economic freedom, and the size of different economic sectors. This model allows 45 per cent of the variance in the return to secondary education to be explained. Only certain variables are shown to be significant (per-capita GDP, economic growth rate, primary and secondary schooling rates), as opposed to others (political and economic freedom and the weight of the different economic sectors). The per-capita GDP is seen to have a negative impact on the return to secondary education: in other words, the rate of return to secondary education falls when per-capita GDP rises. However, the square of per-capita GDP is positive, which indicates that the rate of return to secondary education declines with a rise in GDP, reaches a minimum level (a threshold of about USD 11,000), and then increases again. It can thus be observed that the upper middle-income countries have the lowest rates of return to education. Another study result lends support to Psacharopoulos and Patrinos' finding about the effect of educational supply: the rates of return to secondary schooling are lower when this level of education is in greater supply. The same trends are observed for private returns: per-capita GDP and secondary enrolment rates are the main variables allowing negative private rates of return to secondary education to be predicted. As is the case for social returns, the rate of return of secondary education falls to a certain threshold as a country's wealth increases, and then rises slightly. On the other hand, the variables that capture

[75] He makes these analyses using a sample of countries proposed by Psacharopoulos (for the years 1973, 1981, 1985, 1994), which he completes with around twenty additional studies. His sample covers between 85 and 135 countries in all, according to the level of schooling and the type of return (social or private).

political and economic freedom and the weight of different economic sectors do not appear to have any statistically significant impact.

It is also interesting to note the almost total absence of significant results when Allen repeats the same estimates for higher education. None of the variables used in the above-described models are statistically significant. He has two explanations for this result:

- The definition of higher education varies greatly from one country to another. Higher education is much more heterogeneous than secondary education. In fact, whereas studies of secondary education systematically include all types (academic as well as vocational), studies on higher education rarely include all institutions, and often cover only universities.
- Higher education is very elitist in some countries. With respect to average enrolment rates in higher education, the median is 1.1 per cent for Africa and 20.7 per cent for OECD countries, whereas for secondary education the same indicator ranges from 9.1 to 83 per cent across these regions. Due to the elitist nature of higher education, supply and demand factors have less impact on its return compared to secondary education. Overall, the findings of Allen's analyses confirm Carnoy's assumption that a country's labour supply and demand are key to calculating the return to investment in education.

The results of Allen's analyses also show that the rates of return to primary education are not systematically higher than the secondary education rates of return (or secondary education returns higher than those for higher education), as has been suggested in studies by Psacharopoulos and various World Bank economists. As Carnoy (1995) has shown, the fact that the rates of return to primary education exceed those to other levels of schooling is valid for economies in their early stages of development. With economic growth and higher enrolment rates in the different educational levels, this result changes (to the benefit of secondary and higher education).

In conclusion, these methodological issues show first of all that the calculation of returns is sensitive to the choice of method and data. Nonetheless, the different studies come up with two recurring findings: *i)* the relationship between a country's level of wealth and its returns to education is overall decreasing, but it is the middle-income countries that record the lowest levels of return; and *ii)* the higher the secondary enrolment rates, the lower the returns to education, which suggests that above a certain threshold expanding education supply has only a limited effect.

3.1.3. *Complementary approaches to studying the rates of return to education*

Another salient phenomenon in assessing the effects of education in modern-day societies is “overeducation” – meaning a situation where the level of schooling normally required for a job is lower than the level attained by the individual doing it. Overeducation in fact raises questions as to the match between educational supply and employers’ demands. The extent of the phenomenon varies considerably across countries (Groot and Maassen van den Brink, 2000; Büchel *et al.*, 2003), although the main studies have focused on the most developed countries. However, as early as the 1970s, Irizarry (1980) highlighted occasional problems of graduate unemployment and overeducation in many developing or middle-income countries such as Argentina, Brazil, Colombia and Ghana. The problems of over-supply in certain labour market segments most often involve technical and scientific fields of study in situations where economic growth is highest in the tertiary sector. More recently in Mexico, Quinn and Rubb (2006) also report an increased wage penalty linked to graduate overeducation between 1987 and 1999. Similarly in China, Bai (2006) discusses the limits to expanding mass education and its initial effects on graduate access to employment since 2000.

For Gurgand (2005), the underuse of human resources is to be understood more as an effect of labour market imbalances rather than as the outcome of an education policy that overincentivizes the prolongation of schooling. Even in an equilibrium economy, increases in educational attainment produce the short-term effect of reducing the relative salaries of the most highly educated, as their supply becomes more plentiful. However, in the long run, one can expect companies’ investment decisions to be influenced by the composition of the labour force and to tend towards technologies that are more intensive in skilled workers (Machin and Manning, 1997; Acemoglu, 1999). Other researchers refer to the phenomenon of qualifications inflation especially in OECD countries (see, for example, Duru-Bellat, 2005). Policies to expand higher education or accessibility to the upper secondary levels are particularly affected by this. This phenomenon could be consistent with a version of Spence’s signalling model: a higher level of qualification would allow individuals to signal to employers in the labour market without necessarily increasing their productivity. Firms would simply adapt to the higher level of qualification by raising their recruitment criteria, without reaping any benefit from this. In this relatively strong version, the expansion of higher education and particularly universities would merely make it easier to select elites. For the moment, only a limited amount of research seems to clearly demonstrate a phenomenon of overeducation in developing

or middle-income countries,^[76] although some studies are concerned about an expansion of education that has no real links with the needs of the economy. Likewise, the sizeable flow of graduates into the informal sector of the economy can also be interpreted as an indicator of overeducation.

Added to this phenomenon of overeducation is the problem of mismatch between the areas of specialisation individuals have trained in and the functions they carry out in their job. In other words, the gap between education and employment is no longer only vertical in terms of educational level, but also horizontal, as graduates in certain fields of study are unable to find a job to match. There may be diverse causes for this, involving not only the demand for labour (inadequate wages in the sector, a total lack of job openings...) and labour market rigidities (no geographical mobility, a lack of information about job offers...) but also training. Here again, existing research deals primarily with OECD countries (for example, Wolbers, 2003). This kind of study is nonetheless key to understanding why recruitment shortages occur in one sector when there is concurrently an overproduction of graduates in other sectors.

It is also possible to study the wage return to each type of education in the labour market so as to take account of the different fields of study and specialisations. Few microeconomic studies, however, demonstrate specific effects linked to differences in specialisations or differences between technical or vocational programmes and general programmes in higher education. By and large, this kind of comparison is often difficult, even in OECD countries. From a methodological point of view, it is useful to take the selection and self-selection biases related to the choice of studies into account in the calculations. Besides, the results also depend on employment conditions in the different economic sectors when graduates enter the labour market, whence the need to have data on several cohorts in order to observe trends. The case studies presented by Tzannatos and Johnes (1997) on the development of vocational training in several Asian countries^[77] show that this needs to be closely linked to the economic and industrial conditions specific to each country. They do however point out that to obtain high social returns to vocational training, specialisation in vocational skills and knowledge must intervene as late as possible in the study cycle. Furthermore, part of this specialisation is also necessary in services, even though countries are experiencing high industrial growth. Generally, in middle-income or developing countries, econometric studies that estimate the returns to different fields of study focus mainly on secondary education, and produce contrasted findings.

[76] Chia-Yu's (2008) findings concerning Taiwan reveal a substantial number of workers (47 per cent) who consider themselves to be "overeducated".

[77] The countries studied were South Korea, Malaysia, Singapore and Taiwan.

Psacharopoulos' (1993, then 2002) work usually indicates quite a clear benefit in terms of social return to education for general fields of study as compared to technical and vocational training. The benefit is much lower for private returns to education but is always higher for the general tracks. Although this finding is supported by more recent studies on countries such as Suriname (Horowitz and Schenzler, 1999), other studies argue to the contrary that vocational tracks have an advantage in secondary education compared to the general tracks.^[78]

Apart from the effects of field of study and specialisation, returns to education can also vary between institutions within the same country, either because they are more selective or enjoy a better reputation, or because they invest more "inputs" in education. A great many econometric studies of OECD countries show that differences between higher education institutions can impact the return to qualifications. These differences are rooted in the institutions' selectivity and/or prestige. The more selective the institution and the more the students view it as being prestigious, the higher the returns. Brewer *et al.* (1996) clearly show that attending an elite institution in the United States increases the returns to education (after controlling for the students' individual characteristics and school grades). Zhang (2005), who uses several measures of selectivity, arrives at the same conclusion. In the United Kingdom, Chevalier and Conlon (2003) obtain comparable results, again by controlling for the students' school and university characteristics: attending one of the most prestigious universities carries a wage premium of around 6 per cent. On the other hand, microeconomic studies on the linkage between institutions' educational resources and returns to education often yield non-significant results, once again for OECD countries. Using data on colleges in the United States, Rumberger and Thomas (1993) conclude that, in most programmes, there is no link between educational resources and returns to qualifications. On the other hand, they show that other variables – such as the social composition of the college and its degree of selection at entry – are likely to influence returns. As regards British universities, Belfield and Fielding (2001) also conclude that the correlations between, on the one hand, resources and the teacher-student ratios for each programme and, on the other hand, the returns to qualifications are very weak.

Can these findings be transposed to middle-income countries? This is a difficult question to answer, as the scarcity of data precludes this type of study. In fact, these analyses would imply matching data on graduate entrants to the labour market with data on the institutions – which is a difficult exercise both in terms of collecting and then matching data, above all for comparative purposes. It could be thought that

[78] See especially Ewoudou and Vencatachellum's (2006) study on Cameroon.

the selectivity of an institution continues to have a strong impact on earnings in countries where access to the highest-level jobs is very limited. However, this also depends on an institution's capacity to conduct an effective policy of merit-based selection. As regards the effect that an institution's educational inputs have on the wage returns to qualifications, it seems more difficult to conclude that they have *a priori* no effect, since the differences in resources between institutions are certainly greater than those reported for OECD countries. To our knowledge, no microeconomic evaluation has furnished an answer to this question.

3.2. The relation between education, higher education and growth at the macroeconomic level

Microeconomic and microeconomic approaches to wage returns to education rarely factor in the other positive effects of education, or "externalities" as they are termed in the literature.^[79] These externalities, which relate to all aspects of society, are more easily taken into account by a macroeconomic approach to educational returns.

3.2.1. Different macroeconomic approaches to measuring the education-growth linkage...

Does education have an impact on a country's level of wealth? The answers of education economists vary...The first debates on this issue focussed on the role of education within the production function: can education be considered to be like any other factor of production?

The standard assumption in models of human capital accumulation is that the GDP growth rate is proportional to the rate of growth of educational attainment, and that the contribution of education to growth is confined to the impact of education on productivity. It is thus rooted in the idea that human capital and physical capital intervene in the production process in similar ways. The accumulation of years of schooling results in an increase in productivity, thereby stepping up productive efficiency, assuming a constant level of technology; this increase in efficiency makes it possible to offset diminishing capital returns and, as a result, to drive growth in the long run. In order to sustain long-term growth, there needs to be a constant increase in the population's level of education (Aghion and Cohen, 2004, p.16). This approach was developed by Mankiw *et al.* (1992) on the basis of Solow's growth model.

[79] An external effect, or externality, exists when one individual's action produces side effects on the well-being of other individuals without these effects being taken into account by the pricing or property rights system.

A second approach however takes issue with the idea that education has no effect on technology and posits that economic growth is affected by the level of education (and not by its expansion) in the case of an economy experiencing technical progress. Education thus contributes to growth by enhancing the workforce's capacity to adapt to technological change. Departing from the neoclassical approach, Benhabib and Spiegel (1994) analyse the role of education in economic growth on the basis of the capacity to adapt to technical progress. Their findings are closely linked to the work of Nelson and Phelps (1966), who critiqued the hypothesis that highly educated or barely educated workers were perfectly substitutable for each other, differing only in the number of "efficient" labour units that they are endowed with. In a technologically progressive economy, they consider that educational attainment affects long-term growth by speeding up the adaptation and implementation of technological change in economies that are better endowed with human capital.^[80] For Aghion and Cohen (2004), Benhabib and Spiegel have doubtless gone a step too far in their querying of the neoclassical approach as they deny that human capital accumulation makes any contribution to long-term economic growth. Krueger and Lindahl (2001) show that this finding lacks robustness, chiefly due to flaws in measuring human capital: Benhabib and Spiegel use the logarithm of the number of years of schooling in a macroeconomic version of the Mincer equation, whereas what should be used is simply the number of years. Krueger and Lindahl's econometric study of a panel of 110 countries between 1960 and 1990 shows that both the accumulation and educational level of human capital play a significant role in economic growth.

Endogenous growth theories, developed in the early 1990s, investigate the mechanisms that affect growth rates. They propose two, eventually complementary, views of factors explaining growth. The first lays emphasis on the *increase in research and development activities*. This is alleged to be an outcome of the increase in educational attainment, which enables the accumulation of knowledge and speeds innovation (Romer, 1990). In other words, if the level of education expenditure increases in a particular year, there will be a long-term increase in the stock of human capital and subsequently in the level of wealth generated. The second view recognises that education has another, no less important role, which is not to foster innovation but rather technological adaptation, in the sense given by Nelson and Phelps.

For Aghion and Cohen (2004), a distinction needs to be made between *imitation economies* and *innovation economies*. The first are far from the technological frontier

[80] Benhabib and Spiegel's (1994) growth model posits that the impact of education on growth depends on the country's stage of development. In their view, an economy's growth rate is linked, on the one hand, to the country's education stock, which increases the capacity for innovation and, on the other hand, to a variable that captures the capacity to catch up with, or adapt to, technological advances.

and have a strong potential for assimilating technologies produced elsewhere: they thus need to invest as a priority in the levels of education that facilitate imitation. In order to grow, the second must further technological innovation and, to do so, have at their disposal a large pool of highly skilled labour.

This second view of the role played by education also suggests that the return to education would be higher if it enabled individuals to acquire not only the knowledge and skills required for innovation, but also those geared to adaptation and/or imitation. This approach refers to an important distinction between the different types of human capital needed in a particular country, according to their utility for *developing* or absorbing new technologies. In Van Elkan's (1996) view, developing countries must first give priority to imitation in order to acquire new technologies and partially narrow the gaps in terms of growth. During a second stage, when the potential for imitation has been realised and the stock of human capital is still increasing, education can then focus on innovation (as has been the case in the countries of East Asia).

3.2.2. ... and prolific debates on the limits of these different approaches

Generally, the awareness that investing in human capital is important at the macroeconomic level has produced a wealth of literature on the relationship between education and growth. Some of the literature concludes that education has a substantive effect on growth and constitutes a key factor in a country's economic development. Most theoretical studies concur that education has a positive impact on economic growth, but this impact is not always in sharp evidence in the empirical studies. Even though the findings appear to be robust at the microeconomic level, the debate is much less clear-cut at the macroeconomic level. For many countries and in many empirical studies, the relationship between education and growth is not self-evident. Several reasons have been advanced that underline the fragile nature of this link.

- *The quality of education*

Initially, studies on economic growth integrated different methods for measuring human capital and its evolution. However, problems due to measurement errors and difficulties in cross-country comparisons are likely to affect conclusions about human capital levels (measured by years of schooling); hence the interest in also collecting relatively standardised measures of a country's human capital stock and quality (Box 9).

The problem of data comparability has spawned a wealth of macroeconomic literature on the topic. The works of Barro and Lee (1993), for example, have usefully provided a database that contains more or less comparable cross-country data, based on different statistical sources (population censuses or other surveys on the population's level of education). However, this kind of study, in addition to including a number of approximations due to data limitations, assumes that the knowledge and skills delivered in different countries for the same educational level are homogeneous.

Hanushek and Kimko (2000) expand their analysis by introducing student scores from international tests into the growth models. They developed a method to measure educational quality in 31 countries from 1960 to 1990, based on international tests of student achievement in mathematics and science.^[81] Their results show a positive and significant impact of the education quality indicator thus calculated on the annual growth rate. On the other hand, the coefficient derived from the education quantity indicator is positive but not significant. Barro (2001) uses the same kind of data as Hanushek and Kimko but develops them for each area of skill. His growth model covers 43 countries over three periods of time (from 1965 to 1990). He confirms that the quality of education has a larger impact than the quantity, measured in his article by the average levels of achievement in secondary and higher education.

Another useful aspect of Hanushek and Kimko's (2000) study has been to test in what way variables related to educational resources impact on the quality of education. The authors show that the different educational inputs, such as primary class size or public spending per student, do not have a significant impact on educational quality. On the other hand, Barro and Lee (2001), who also integrated input variables, show that educational resources and teacher salaries have significant and positive effects on success rates in tests, while the "primary class size" variable has a significant and negative impact. Nevertheless, their finding has attracted a good deal of criticism: on the one hand, their estimates combine all school levels and all types of skills; on the other hand, although they use panel data, they do not address the problems of endogeneity. On the basis of the average success rate per class in mathematics tests for students aged between 9 and 13, Hanushek and Luque (2003) find that the characteristics of the school have no significant effect in almost all the countries. More recently, the study of Jamison *et al.* (2007) covering a larger number of countries supports Hanushek and Kimko's

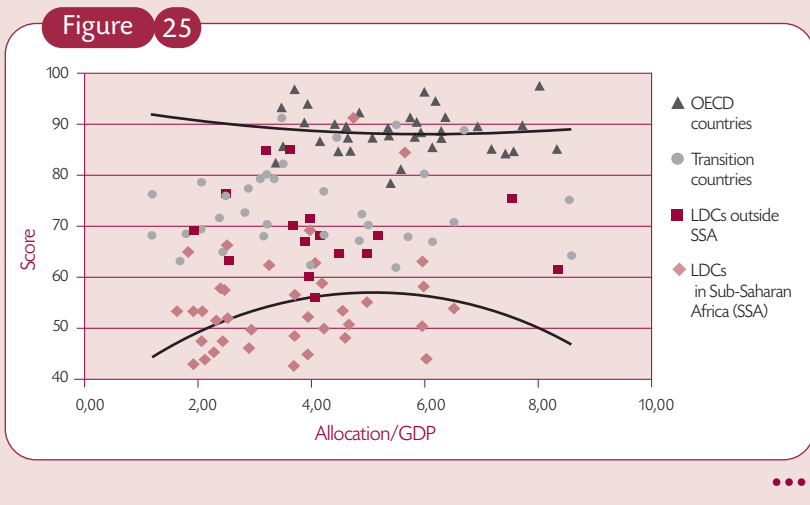
[81] For this study, they used the surveys of the IEA (International Association for the Evaluation of Educational Achievement) and the IAEP (International Assessment of Educational Progress).

results. It shows a fairly significant increase of per-capita income growth when the level of scores in mathematic and science tests^[82] rises. According to their estimations, a one-standard-deviation increase in test scores translates into a 0.5 to 0.9 per cent increase in the growth rate of per-capita income. In addition, their panel results seem to indicate that this quality-related effect is chiefly due to the accumulation of technological progress within the economy.

[82] ISAT (International Student Achievement Tests) in mathematics and science.

Box 9 Measuring educational quality

Measuring the quality of education comes up against serious difficulties. Since the work of Hanushek and Kimko (2000), there have been numerous attempts to find a relationship between the level of educational quality and economic growth. However, international comparability of results is a delicate matter insofar as educational objectives are often linked to national contexts. There have been attempts such as those of Altinok and Murseli (2007) to compile and cross-compare various measures of educational quality, chiefly drawing on large international surveys of educational assessment (PIRLS^[83], PISA^[84], TIMSS^[85] ...). These studies show above all the interrelationships between educational quality and economic growth. By way of illustration, Figure 25 cross-compares academic performance and the resources allocated to education for all the countries for which an educational quality assessment is available.^[86] This clearly shows the need to relativise the relationship between education expenditure and academic performance. For OECD countries, the relationship is inexistent and in the case of Sub-Saharan Africa, while the relationship holds good up to a certain percentage of expenditure, *a contrario* the countries most heavily committed to spending on education are those that obtain the worst results. Conversely, educational quality generally seems to be more linked to levels of development, as is shown by the relative clustering of the country groups.



[83] Progress in International Reading Literacy Study.

[84] Programme for International Student Assessment.

[85] Trends in International Mathematics and Science Study.

[86] More precisely, in this figure the horizontal axis represents the percentage share of GDP allocated to education and the vertical axis shows the average success rate of the representative student sample in a test covering the educational programme at the end of primary school or the beginning of secondary school.



In this context, middle-income countries could be positioned within a fairly wide range of educational performances, and thus of educational quality. Unlike other world regions, there is no programme that assesses educational achievement in the Mediterranean region, although several countries in the region continue to take part in different phases of international programmes. However, the increasing complexity of comparing education systems in the later years of schooling means that these programmes are limited to the primary and secondary levels.^[87] Recently, the three reference countries have participated to varying extents in the TIMSS surveys of eighth-grade pupils (middle of secondary school for 14-year-olds), carried out by the IEA. Tunisia participated in the 2003 and 2006 sessions of the PISA survey conducted by the OECD Education Department.

The average mathematics scores for students in the national samples participating in the TIMSS survey were 391 in 2007 (407 in 2003) for Egypt, 449 (434) for Lebanon and 420 (410) for Tunisia.^[88] Tunisia had already participated in the 1999 eighth-grade assessment: the 2007 results show that the overall performance in mathematics had partially caught up with the 1999 score (438), without this progress being attributable to gender disparity. In each survey, Tunisia is one of the countries where gender disparity is the most pronounced (over 20 points higher for boys).^[89] In Egypt, the mathematics score for girls progressed between 2003 and 2007. In Lebanon, the performance in both test sessions is identical for girls and boys.

To make a comparison using a more quantitative indicator – the UNDP Human Development Index (HDI) – the respective values in 2007 are 0.772 for Lebanon, 0.766 for Tunisia and 0.708 for Egypt. If one compares the TIMSS scores for the countries with a similar HDI, it can be seen that the Islamic Republic of Iran obtained a score of 403 in 2006 for an HDI of 0.759 and Turkey a score of 432 for an HDI of 0.775. These scores do not show an outstanding achievement for our reference countries.

The variation in the average performance raises some questions, as it is more appreciable in these three countries than in the other cases. This may be explained by student drop-out, particularly in Egypt and Tunisia. On the other hand, at least for Tunisia and Lebanon, the top quintile of students is seen to have a performance level identical to that of the same quintile in EU countries.



[87] Comparisons at the level of higher education are mainly limited to comparative international rankings of institutions, which so far do not include the three countries concerned.

[88] In these international surveys, the score is interpreted as the distance from the international mean score of 500, which corresponds to the average performance of all the students in all the participating countries. The data referred to here have been taken from the TIMSS 2007 site: <http://timss.bc.edu/timss2007/index.html>.

[89] A gap that is not constant during the whole school career: Tunisia also participated in the TIMSS tests in mathematics for the 4th year of primary school: while the score obtained (327) shows a sharp fall from 2003 to 2006, it confirmed a fairly clear average advantage (of 13 points) of the girls over the boys.



The TIMSS survey also tests acquired skills in scientific subjects. For the three countries, the level of performance is comparable overall to that reported for mathematics.

Whereas the TIMSS survey refers to a very precise level of school curriculum, the PISA programme functions more diachronically by selecting a representative sample of 15-year-old students irrespective of their position in the educational cycle.^[90] Moreover, the competencies covered in PISA are not based on knowledge acquired in school, but rather on skills that a young adult is expected to have in today's world. Tunisia is the only one of the three countries studied that participated in PISA (in 2003 and 2006). In both years, mathematical knowledge was tested and shows average progress (from 358 to 365). This progress is two points higher for boys, which means that the gender gap is increasing but remains at a level under half of that reported in the TIMSS survey. By comparison, the 2003 score for Turkey is 424, and 476 for the Russian Federation. The 2003 average score for Tunisia is 386 for science, with a very slightly higher performance by girls (388 against 384), just significant in terms of the gap with the boys. Again for 2003, the performance in reading literacy (understanding and talking about texts) is more mediocre, with a score of 380 (compared to 447 for Turkey and 447 for the Russian Federation).

- *The level of economic growth*

Although most studies show that the accumulation of knowledge has a positive and not insignificant effect on economic growth, nothing indicates that this is sufficient *per se*. Were it the case, a trend acceleration in economic growth should have been observed in a good number of African countries that, between the 1960s and 1980s, made a successful leap forward in school enrolment (Quenum, 2008). This raises several questions about the level of economic development: to what extent is an increase in enrolment rates likely to produce an accumulation of productive knowledge that is “useful” to the economy? Is this increase the cause of economic growth, or simply its consequence? If it is a prerequisite for growth, is it sufficient *per se* or is it linked to other factors?

[90] The data have been sourced from the PISA site: <http://pisa2006.acer.edu.au/>.

Empirical studies show first of all that the significance of the education-growth relationship and its intensity vary across countries and world regions. While various studies help to shed light on this relationship in some Asian countries, the specific African setting often seems to rule out such findings. Mingat (1995) studies the relationship between education and growth in fourteen Asian countries over the 1960-1992 period to explain why some Asian countries experienced remarkable thirty-year-long economic growth, whereas others suffered from relative stagnation. He concludes that education has a positive influence on growth, but that only primary education is statistically significant. Végançonès (1997) obtains a similar result for Argentina on the basis of calculations for the 1910-1992 period. In their case study of Taiwan over the 1966-1989 period, Tallman and Wang (1994) successfully demonstrate a correlation between education (broken down into several levels) and the rhythm of growth. By contrast, the impact of education on growth does not appear to be confirmed by studies of African economies.

Additionally, Mingat and Tan (2003) show that the impact of education differs significantly depending on both the initial level of economic development, and the level of schooling. Thus for countries with a low initial level of economic development, primary education is shown to be the soundest investment. Conversely, in middle-income countries, secondary education is shown to have been the strongest driver, even though primary education still retains considerable importance. Lastly, in high-income countries, it is higher education that plays a prime role. The authors thus show that for economic growth a gradual shift in the role of schooling levels occurs, as if the increasing maturity of an economy and the specialised job skills corresponding to this development implied the matching educational structures. At the end of their analysis, they conclude that low-income countries should invest more heavily in primary education.

Some empirical and theoretical studies attempt to explain the differences in returns to education in different countries and more specifically, in certain cases, the absence of the education-growth relationship. The article by Pritchett (2001) effectively summarises the scepticism shown by many economists regarding the existence of an automatic relationship between education and growth. In his opinion, the benefits of education vary considerably and do not always correspond to the expected effects, for three main reasons:

- 1) The institutional environment and public policies are inefficient, with the result that human capital accumulation does not drive an increase in economic growth.
- 2) The marginal return to education has fallen, insofar as the supply of educated labour has increased while demand has remained stable or declined.

3) Educational quality is so poor that education fails to produce human capital.

For Pritchett, it is the magnitude of these three phenomena and their interactions that explain the relative force of the education-growth relationship. If no prior thought is given to the relationships between the supply of higher education and the demand for skilled workers, there is a risk of inciting or reinforcing “brain drains” which may be external (departure abroad of skilled workers – Box 10) and/or internal (skilled individuals whose occupation bears no relation to their qualification).

Box 10 *Brain drain: what are the consequences?*

Brain drain has become a major issue for many countries, developed or not, as they are concerned about losing a part of their elites. In the early 2000s in OECD countries, there were 20 million highly skilled migrants (workers born abroad that had passed through higher education), most of whom were from developing countries. According to Docquier and Marfouk (2006), the number of highly skilled migrants grew by 63.7 per cent in 10 years, while that of non-skilled migrants increased by only 14.4 per cent.

What are the economic consequences of these migrations? Although they are sometimes positive – in the case of remittances or return migration with professional experience acquired abroad – they can also be socially negative owing to the cost of funding the migrants’ education if this is borne by the sending country. The scarcity of comparative data on migration flows in different countries makes it impossible to come down in favour of either hypothesis. With the help of the World Bank, Docquier and Marfouk (2006) constructed a database on immigration in 27 OECD countries in 2000 and 24 countries in 1990. This database makes it possible to compute emigration rates by educational attainment for 195 countries in 2000 and 174 countries in 1990. It shows that the highest rates are in middle-income countries, where migrants usually have the resources to finance their plans to migrate.

Beine *et al.* (2008) draw on this data set to estimate the consequences of migration on human capital formation in the sending countries. On the basis of estimates for all the countries (a sample of 127 developing countries), they show that migration prospects have a positive net effect on human capital formation in these countries: doubling the emigration rate had the effect of increasing ex ante human capital formation by 5 per cent. In other words, migration represents an opportunity for individuals; it offers the expectation of higher earnings, which individuals integrate into their choice to invest in education. However, the net effect varies according to the country, the “losers” being generally more numerous than the “winners”. Developing countries with relatively low emigration rates and a small stock of higher education graduates generally benefit. On the other hand, countries where both emigration and higher education graduation rates are high by and large seem to lose out. The detailed results show, for example, that

...

...

Egypt experiences positive effects, whereas for Tunisia the opposite case seems to be true. A country like Lebanon experiences a strong negative impact, due to its particularly high number of emigrants.

In addition to labour mobility, there is student mobility, which can evolve into an enduring form of mobility. According to UNESCO, there are around 2 million students worldwide who are enrolled in higher education as non-nationals. Students from many developing countries study in high-income countries and then decide to stay there. Rosenzweig (2006) for example states that 20 per cent of students from Asian countries who left to study in the United States become permanent immigrants if the skill price is low in their countries of origin. On the other hand, the stay rate is only 2.5 per cent for countries like India, Taiwan or Singapore. For Rosenzweig, the wage return to highly qualified work in the country of origin is one of the main determinants of the student's return/non-return to his or her country of origin. He shows that a doubling of the skill price in the country of origin significantly reduced the number of students who stayed on in their host country. On the other hand, increasing higher education provision (for example, by opening more institutions) can generate migrations if the return to schooling remains constant.

3.3. The relationship between higher education and the labour market in MENA countries

According to the World Bank (2007), MENA countries began to invest in human capital later than elsewhere but over the last four decades they have made substantial efforts in the realm of education: *"Over the last 40 years, MENA countries on average dedicated 5 percent of GDP and 20 percent of government expenditures to education, which is more than other developing countries at similar levels of per-capita income"* (p.3). Today, MENA countries are marking up considerable advances in education: *i)* primary and secondary enrolment rates for the school-age population are above average for countries with a comparable per-capita income (Guetat and Serranito, 2007); *ii)* the gender gap in education has been closed; and *iii)* universal primary education has become a reality in all these countries (World Bank, 2007). On the other hand, the illiteracy rate remains high and exceeds that of Latin America or South-East Asia.

Egypt, Tunisia and, to a lesser degree, Lebanon have experienced a relatively similar evolution in their education systems over recent decades, albeit with some specific differences. Since its independence, Tunisia has made the development of its human

capital the core of its policy. It has built up its education system by specifically focusing first on the universalisation of primary education and then on the expansion of higher education. In 2006, 1.1 million children were enrolled in primary education, 1.3 million in secondary and 325,000 in higher education. Girls have almost caught up with boys: in 2006, they represented 48 per cent of those attending primary school, 51 per cent of secondary school students and 60 per cent of higher education students. The forecasts of the Ministry for Higher Education estimate that, between 2006 and 2015, the number of university graduates will rise from 52,000 to more than 100,000, which is equivalent to an average annual growth rate of 9 per cent. According to the World Bank (2003), Egypt has achieved universal primary education and significantly reduced gender disparities in access to all levels of education. However, its literacy rate remains relatively low and educational quality needs to be upgraded. Since the 1990s, education has become the national priority and various reforms have been successfully implemented in the areas of teachers' working conditions, the structure of the education system (to promote greater flexibility – distance training, transition between vocational education and higher education, etc.) and teaching content (new technologies, skill-based approach, etc.) (World Data on Education database, UNESCO, 2003). Compared to most MENA countries, Lebanon has distinctly higher levels of school enrolment. The 2004 National Survey on Living Conditions of Households shows that respectively 98 per cent and 95 per cent of the 5-9 year and 10-14 year age groups attend school, against 70 per cent for the 15-19-year-olds. In addition, slightly more girls attend school than boys, whatever their age. Lastly, Lebanon stands out as having a high proportion of students attending private institutions, especially in higher education, with 50 per cent of students enrolling in these institutions in 2005.

3.3.1. Higher education and economic growth in the MENA region: a far-from-obvious link

Different macroeconomic studies have analysed the effect of education on growth in the MENA countries. They sometimes attract criticism (first part) with respect to both the quality of data and the methodological problems relating to the types of estimations. There is nonetheless one recurrent finding in most of the studies: the relationship between education and growth is particularly weak.

- ***The fragility of the education-growth relationship in the MENA region***

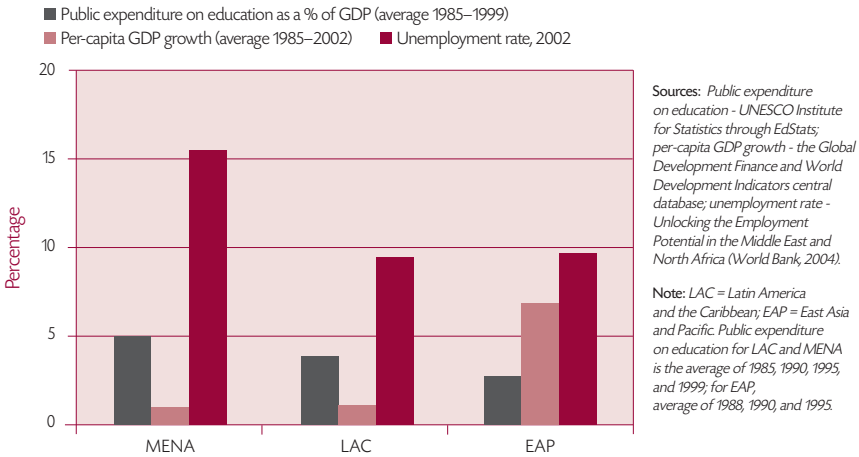
It should first be recalled that raising the level of education in a country does not automatically result in economic growth, and that admission to high-level study programmes provides no guarantee against unemployment and no certainty of access

to a highly paid job. Many theoretical as well as empirical studies point up the limits of these causal relationships at both the macroeconomic and microeconomic levels. This holds particularly true for studies on the MENA region. The World Bank's flagship report on education in the region (2007) reveals the fragile nature of the link between economic growth and the level of development of the education system:

Per-capita economic growth in the region over the past 20 years has been relatively low despite the improvements in educational attainment. Ironically, higher economic growth corresponded to low levels of education attainment in the 1960s and 1970s. Similarly, Total Factor Productivity, which measures the impact of factors other than increases in physical and human capital stock, was low or negative in the MENA region during the 1980s and 1990s, a period during which educational attainment was increasing. This suggests that educational attainment has not significantly contributed to economic growth or productivity in the region. (p.5)

Figure 26

Public Expenditure on Education, per-capita GDP Growth, and Unemployment



Source: World Bank (2007, p.6).

Several explanations have been put forward to provide more insight into the weakness of the education-growth relationship in the MENA region. The first concerns the quality of education: illiteracy is twice as high as that in South-East Asian and Latin American countries. International achievement tests indicate that MENA countries, though bordering on rates deemed to match their GDP, obtain lower scores than other high-growth middle-income countries like Korea or Malaysia.

The second explanation relates to the wider variance in teaching quality in MENA countries, which may explain the weak impact on growth. Lastly, the economic structures in MENA countries, as well as their labour markets, inhibit the positive effect of educational development on growth.

- *Labour market rigidity and insufficient demand*

According to the OECD (2002), the correlation between educational attainment and economic growth is less obvious in Egypt (as in India and Tunisia) than in Argentina, Brazil, Chile and particularly Indonesia (other countries in the OECD/ UNESCO World Education Indicators [WEI] programme). Human capital plays a bigger role in economic growth once a critical threshold has been reached. This observation is shared by Boutrolle (2003), who compares the returns to investment in education across two country groups – South-East Asia and the South Mediterranean – in which educational development has not generated the same economic dynamism. Both groups of countries have in fact invested heavily in education since the 1960s. While a number of Asian economies have, in less than 40 years, successfully drawn close to the development level of the most developed countries, most Mediterranean countries have not managed to achieve their expected goals.

The vast majority of empirical studies on the MENA region, and particularly on North Africa, conclude that there is no causal relationship between education and economic growth. Bennaghmouch and Bouoiyour (1997) analyse a sample including North African countries over the 1965-1993 period and suggest that schooling (at whatever level) does not contribute to the growth of their economies. Bennaghmouch (2005) herself critiques this approach, which precludes the capture of possible finer differences between economies. To obtain a more satisfactory analysis of national education institutions and practices, Bennaghmouch (2005) conducted an empirical study of one North African country: Morocco. She tests for the education-growth relationship by drawing on annual data sets covering the 1976-1995 period and concludes that only the primary and secondary vocational education have had a positive effect on the growth of the Moroccan economy.

A more exhaustive comparative study of MENA countries from Pissarides and Véganzonès-Varoudakis (2005) concludes on the other hand that, in most cases, educational outcomes are disappointing. Using World Bank data to decompose the GDP growth rate into three factors,^[91] these authors show that human capital makes a very small contribution to this growth. In fact, since the 1980s, total factor productivity

[91] Source: Pissarides and Véganzonès-Varoudakis (2005, p.8).

(TFP) had fallen or was equivalent to zero in most countries. This phenomenon is even more pronounced when one focuses on TFP2, which incorporates human capital as a production factor. During the 1990s, TFP became positive again but was very low in most countries. For the authors, labour market structures partly explain this disconnect between the high increase in human capital and its weak impact on growth. One of the region's main handicaps is the excessive size of its public sector: compared to other regions, MENA countries are disadvantaged by the underdevelopment of their industrial sector, whilst the public sector employs too large a fraction of the labour-force and underutilises much of the skilled workforce. Moreover, when the unemployment rate for skilled workers rises, the queues for employment in the civil service grow longer. Not only has this sector become the main source of employment, despite the fact that it does not fulfil any real need, but this situation has also slowed down or blocked the reforms required to adapt the education system to the needs of industry. Lastly, the higher wage differential between public and private sectors in the MENA region, as well as labour market rigidity (greater than in the Asian countries), may also explain the low contribution of human capital to growth in these countries.

Table 12 *Calculations for a selection of MENA countries (average annual growth rates in %)*

		GDP	Capital Stock	Labor Force	TFP1	Skilled Labor Force	TFP2
Algeria	1970	5.7	8.7	3.2	0.3	4.4	-0.4
Algeria	1980	2.5	4.9	3.8	-1.8	5.5	-2.8
Algeria	1990	1.5	1.0	3.8	-1.1	5.0	-1.8
Egypt	1970	8.0	9.8	2.1	2.8	4.5	1.4
Egypt	1980	4.9	8.8	2.5	-0.1	4.5	-1.3
Egypt	1990	4.3	3.4	2.9	1.2	4.2	0.5

		GDP	Capital Stock	Labor Force	TFP1	Skilled Labor Force	TFP2
Iran	1970	0.7	12.8	3.0	-6.2	4.3	-7.0
Iran	1980	3.8	2.6	3.0	1.0	4.2	0.3
Iran	1990	4.0	1.3	2.3	2.1	3.7	1.2
Jordan	1970	8.7	10.8	2.3	3.0	3.4	2.4
Jordan	1980	3.2	7.0	4.9	-2.6	6.7	-3.6
Jordan	1990	5.2	1.3	5.8	1.2	6.9	0.6
Morocco	1970	5.6	8.8	3.2	3.0	4.1	-0.4
Morocco	1980	3.6	4.9	2.6	-2.6	3.4	-0.4
Morocco	1990	2.2	3.5	2.5	1.2	3.4	-1.2
Tunisia	1970	7.4	7.0	3.6	2.4	5.1	1.5
Tunisia	1980	3.7	4.6	2.7	0.3	3.7	-0.4
Tunisia	1990	4.8	3.3	2.9	1.7	4.0	1.0

Source: Pissarides and Végarzonès-Varoudakis (2005, p. 8).

The slightly more recent analysis proposed by Abu-Qarn and Abu-Bader (2007) arrives at similar conclusions, even though the authors are more cautious about the explanations and recommendations associated with their findings. Drawing on a database covering ten MENA countries for the 1960-1998 period, they show that the effect of TFP on growth is not significant, and even negative, in six out of the ten cases. The effect is positive but very weak in Tunisia. It is a little higher in Egypt, Israel and Morocco. However the growth generated is mainly due to the accumulation of physical capital and, to a lesser extent, to improvements in the quality of the workforce.

- *An educational supply poorly adapted to the knowledge economy and the requirements of economic growth?*

An education offering adapted to the needs of technology is usually considered to be a prerequisite for stimulating growth.^[92] Is this the case for MENA countries?

[92] For Aghion and Cohen (2004, p.32), for example, « l'arrivée d'une nouvelle vague technologique constitue un des facteurs à travers lequel une augmentation de la fraction de la population ayant suivi une formation supérieure est de nature à stimuler la croissance. » (The arrival of a new technological wave is one of the factors through which an increase in the fraction of population having completed higher education studies is of a nature to stimulate growth.)

The Knowledge Economy Index (KEI), which benchmarks the extent to which different countries participate in the knowledge economy, provides some elements of response. This indicator is calculated on the basis of four main criteria: *i)* economic incentives and institutions; *ii)* education and training; *iii)* innovation and adaptation to technologies; and *iv)* the growth of information and communication technology (ICT). As has been underlined by the World Bank (2007), the results of MENA countries are below average and often lower than those of most transition economies. In 2008, Lebanon was in 69th place with a score of 5, but had dropped nine places compared to 1995. Tunisia, which was in 72nd place in 2008, had moved up 14 places since 1995, notably in the areas of innovation and the development of new technologies. Egypt, in 83rd place, had fallen back one place compared to 1995. For the World Bank, the poor performance of MENA countries stems from a lack of various transversal skills (especially in the fields of problem-solving, communication...) and from their pedagogical models, which were relatively out of date with respect to the requirements of the knowledge economy. Additionally, the organisation of their education systems allows little flexibility for returning to schooling and lacks the quality control mechanisms that are vital for regulating such systems.

3.3.2. Rising graduate unemployment for decreasing returns to education

The MENA countries are characterised by both a high level of unemployment (12.2 per cent in 2006, according to the ILO) and a very low employment rate (47.3 per cent, according to the World Bank). The entry into the labour market of increasingly numerous cohorts of young people, along with the growing rate of female employment, may well in the short run heighten tensions in the supply of labour. Although on average they are more highly qualified, these new entrants are already particularly hard hit by unemployment compared to other world regions. Their unemployment rate, which exceeds 25 per cent in many countries, is over three times higher than the adult rate.^[93] Surveys confirm that the younger generation is up against a difficult situation in the region's labour market.

• Mass unemployment and the skills mismatch for higher education graduates

Tunisia is one of the few countries in the Mediterranean basin to have conducted (in 2005) a national survey on the labour market outcomes of its higher education graduates, with support from the World Bank (World Bank and Tunisian Ministry of Employment, 2007). The survey reports the work experience of young graduates during the first 18 months of their working lives and is based on a representative

[93] According to the ILO, in 2003 the youth unemployment/adult unemployment ratio was 3.3 in the MENA countries against 2.3 in the industrialised countries, 3.1 in Latin America and 2.9 in East Asia.

sample of young graduates by field of study, programme and region, from across the whole Tunisian higher education system (excluding PhD students).

The results show that higher education graduates are massively affected by unemployment: 18 months after graduation, 46 per cent of young jobseekers had not found employment. The phenomenon is even more acute for women, as their unemployment rate is in excess of 51 per cent. For those who managed to find employment, the survey also reveals problems of overeducation and skills mismatch. The overeducation rate is especially pronounced for Master's graduates, as it exceeds 43 per cent, compared to 35 per cent for senior technicians and 10 per cent for engineers (mainly agronomists). The rate of mismatch between educational specialisation and occupation is lower than the overeducation rate, but concerns a third of senior technicians and nearly 15 per cent of graduates with a Master's degree.

In Morocco, higher education graduates experience a high level of unemployment but also, and increasingly often, they go through long spells of unemployment at the end of their studies. In 2002, unemployment for higher education graduates reached 26.5 per cent, against 5.6 per cent for unqualified individuals. According to data from the Statistics Directorate, the differences are especially marked for the young generations. The unemployment rate for higher education graduates reached 61.4 per cent in the 15-24 age group, 32 per cent for secondary graduates and 9.1 per cent among young people without a diploma. Those leaving university are the first to be affected, with an unemployment rate in excess of 40 per cent over the last ten years. In addition to these qualification-related differences, there are clear disparities depending on an individual's place of residence (urban/rural) or gender (El Aoufi and Bensaïd, 2005). According to Bougroum and Trachen (1997), two key macroeconomic factors can help to explain the magnitude of graduate unemployment. The first is linked to the increased supply of qualified labour due to population growth and the expansion of secondary education. This increase occurred, however, at a time when the offer of qualified jobs was decreasing particularly because of the sharp decline in public sector recruitment – which is the second factor for this mass unemployment. The State's disengagement as an employer is the consequence of the structural adjustment plans adopted by Morocco as of the early 1980s.^[94]

[94] « Cette baisse de la demande dans le secteur public est loin d'être compensée par la demande émanant du secteur privé d'autant plus que les besoins des deux secteurs sont qualitativement très différents. Cette différence qualitative s'explique en partie par le fait que le transfert de la demande du travail qualifié du secteur public vers le secteur privé n'a pas eu de répercussions sur le contenu et les objectifs des formations dispensées au sein de l'université qui restent fortement orientées vers la satisfaction des besoins du secteur public » (Bougroum and Trachen, 1997, p. 62). (This fall in public sector demand is by no means offset by private sector demand, all the more so as the needs of the two sectors are qualitatively very different. This qualitative difference can be explained partly by the fact that the shift of the demand for qualified labour from the public to the private sector has had no repercussions on the the content and objectives of the education provided by the universities, which remain heavily geared to meeting public sector needs.)

The situation in Egypt appears to be fairly similar, although we do not have precise data on the unemployment of graduates who recently entered the labour market. In the early 2000s, the unemployment rate of higher education graduates (of all ages) varies between 11 per cent and 14 per cent, against 8 per cent for primary graduates (8 per cent for illiterates and 4 per cent for those who knew how to read and write) (El-Matrawy and Semmler, 2006, p.17). In addition, one can note that the relative situation of higher education graduates is deteriorating: while graduates of secondary technical education were the most affected by unemployment in 1996, it is higher education graduates, both male and female, who find themselves in this situation in 2006. The problem of unemployment is likely to become more acute for the growing number of more highly qualified young people who leave the education system each year. In 2006, almost 80 per cent of those unemployed in Egypt were new labour market entrants, as compared to just over 25 per cent in Tunisia (World Bank, 2008).

Compared to the other countries studied, the unemployment rate for higher education graduates is lower in Lebanon, standing at around 10 per cent for men and 8 per cent for women, which is very slightly below the national average (2004 National Survey of Household Living Conditions). With just a half a percentage point difference, it is virtually identical to the unemployment rate for secondary graduates. As in the other countries, it is the youth who are the worst hit by unemployment: 27 per cent for the under 19-year-olds and 17 per cent for those in the 20-24 age group. However, it is difficult to know with greater precision in what conditions the new cohorts of higher education graduates enter the labour market, as we have no data on unemployment by age and educational attainment.

- *Lower returns to education*

World Bank 2004 estimations of the returns to education in three MENA countries, using data from the late 1980s and the 1990s on sector and gender, show overall higher returns to higher education compared to other levels – a result shared by other studies that use “labour force” surveys (Wahba, 2000). This may appear to contradict the previous observations on the rising rate of unemployment among higher education graduates, although this phenomenon is more recent (and therefore not taken into account at the wage level). The result of these estimates nonetheless lends support to the insights of other studies on the linkages between education and economic growth in MENA countries

First of all, the returns to education are almost systematically higher in the public sector than in the private sector, which indicates that public employers attach greater value to schooling than private sector employers. Even though the gaps appear to narrow at the end of the 1990s, mainly as a result of decreasing returns in the public sector, they remain significant for Egypt in the majority of cases.

Next and overall, these results show a reduction in returns to education in these countries, especially for men. The authors explain this as being due to the increasing graduate unemployment, which exerts a downward pressure on wages. This trend allows women to catch up and, sometimes, exceed the return for men, especially at university level. However, other studies have underlined that in Egypt, men's earnings are appreciably higher than those of women in the same occupations (Arabsheibani, 1990).

Finally, it is interesting to note that the estimated rates of return to education in Egypt (5.2 per cent on average on the basis of Lambropoulos and Karadjia's 1999 figures for the World Bank) are almost identical to the rates calculated for young Egyptian migrants to the United States (4.9 per cent; Bratsberg and Terrell, 2002). Even if the basic wage level is not the same in the two countries, the return to a year of schooling in Egypt appears to be fairly close for migrants and non-migrants. Yet, obviously, the estimation methods are different and methodological problems relating to selection render such comparisons somewhat risky.

Table 13 Rates of return to education in Egypt, Morocco and Yemen, by educational level and sector (% per year)

	Egypt		Morocco		Yemen
	1988	1998	1991	1999	1997
Primary					
Male public	8.2	6.4	12.4	6.1	2.7
Male private	2.3	3.6	3.0	3.4	2.7
Female public	1.9	5.3	28.2	10.5	5.1
Female private	0.9	7.2	8.5	9.4	8.0
Lower secondary					
Male public	7.0	4.9	10.7	8.2	2.7
Male private	2.5	4.4	6.4	6.3	2.7
Female public	7.7	8.2	22.3	13.4	3.7
Female private	3.2	11.2	13.9	10.0	7.4
Upper-secondary general					
Male public	8.6	8.8	10.6	8.8	2.2
Male private	6.3	7.3	10.4	7.7	2.2
Female public	8.6	9.7	18.1	12.1	3.9
Female private	3.8	1.5	16.4	11.0	12.1
Upper-secondary vocational					
Male public	9.6	7.2	8.4	6.8	3.3
Male private	5.3	5.0	6.9	5.8	3.3
Female public	7.9	9.6	16.5	11.9	4.3
Female private	4.4	4.9	11.1	11.3	10.7
University					
Male public	10.1	8.8	10.8	8.9	3.8
Male private	8.5	7.3	12.5	9.5	5.2
Female public	8.9	10.7	15.0	12.8	4.4
Female private	9.1	10.9	15.2	9.3	6.8

Source: World Bank (2004).

Conclusion

The education-growth relationship is often presented as a major challenge for a country's development. Investment in education thus seems to be a key priority for setting in motion a virtuous circle of growth and economic development. The economic literature presented in this paper lends credibility to the hypothesis that individuals or countries that invest in education generally see their productivity increase. In the majority of cases, educational investment is a profitable investment at both the individual and societal level. Yet, this relationship is not automatic and does not apply uniformly to all levels of education or to all countries. Moreover, it certainly needs to be nuanced in the case of the MENA countries. Over recent decades, these countries have invested heavily in their education systems in line with a pro-active public policy designed to give a growing number of young people access to higher education. However, if one examines these countries' growth and their graduate unemployment rates, this investment effort has not yielded its full fruit. Their population growth rates also suggest that the coming years may well see increased unemployment among the cohorts arriving on the labour market and who are often much more highly qualified than their predecessors.

Pritchett's (2001) work on the analysis of the increased duration of schooling in developing countries makes it possible to identify the three main factors that explain this situation:

- 1) The institutional environment and public policies are inefficient with the result that human capital accumulation is not accompanied by an increase in economic growth.** In the case of MENA countries, some studies emphasise the rigidity of the labour market, the predominance of the public sector, and the total absence of market regulation in the area of educational supply.
- 2) Marginal returns to education have decreased, insofar as the supply of educated labour has increased while the demand has remained stable or declined.** Many of the MENA countries seem to be in this situation, although the scarcity of recent data makes it impossible to demonstrate a significant drop in the returns to education. It seems, however, that there is a significant quantitative, as well as qualitative mismatch between the needs of the productive economy and the supply of graduates. Countries like Egypt or Morocco, which had given high priority to graduate employment in the

public sector, are now reducing their civil service staffing levels. On the other hand, the private sector is not relaying the public sector in recruiting graduates – who moreover are qualified in fields that do not match private sector needs.

3) Education quality is too poor for education to create human capital. On this point, MENA countries appear to be in an intermediary situation. Their literacy rates are lower than those in many countries with similar income levels and the national variance in the population's years of schooling is high. Added to this, the results of school tests give these countries an average ranking relative to their level of economic development, although they are slightly above countries with which they may be competing, especially for foreign investment. Finally, even if some headway has been made in higher education, the massive increase in student numbers, inadequate regulation and the quasi-absence of quality assurance mechanisms in the different institutions all stand as major handicaps for these systems.

References

ABU-QARN, A.-S. and S. ABU-BADER (2007), "Sources of Growth Revisited: Evidence from Selected MENA Countries", *World Development*, 35-5, pp.752-771.

ACEMOGLU, D. (1999), "Patterns of Skill Premia", *NBER Working Paper No. 7018*, National Bureau of Economic Research.

AGHION, P. and E. COHEN (2004), *Éducation et croissance*, Rapport du Conseil d'analyse économique, La Documentation française, Paris.

ALLEN, J. (2001), "Effects of a country's economic and social context on the rates of return to education: A global meta-analysis", mimeo, Stanford University School of Education, Palo Alto, CA.

ALTINOK, N. and H. MURSELI (2007), "International Database on Human Capital Quality", *Economics Letters*, Vol. 96(2), pp.237-244.

ARABSHEIBANI, G. (1990), "Higher Education and Occupational Status of Women in Egypt", *African and Asian Studies*, Vol. 25, No. 3-4, pp.213-218.

ASAOKA, H. (2006), *Investing in Education in India: Inferences from and Analysis of the Rates of Return to Education Across Indian States*, unpublished thesis, Stanford University School of Education, Palo Alto, CA.

ASHENFELTER, O. and C. ROUSE (1999), "Schooling, Intelligence, and Income in America: Cracks in the Bell Curve", *NBER Working Paper No. 6902*, National Bureau of Economic Research.

BAI, L. (2006), "Graduate unemployment: Dilemmas and challenges mass higher education", *The China Quarterly* 185, pp.128-144.

BARRO, R.-J. (2001), "Human capital and growth", *American Economic Review* 91, No. 2 (May), pp.12-17.

BARRO, R.-J. and J.-W. LEE (1993), "International comparisons of educational attainment", *Journal of Monetary Economics* 32, No. 3 (December), pp.363-394.

BARRO, R.-J. and J.-W. LEE (2001), "International data on educational attainment: Updates and implications", *Oxford Economic Papers* 53, No. 3 (July), pp.541-563.

BASDEVANT, O. (2002), "Croissance, R&D et formation : une revue de la littérature", *Problèmes économiques*, No. 2776, 18 September, pp.14-20.

BECKER, G.-S. (1964), *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*, University of Chicago Press, Chicago.

BECKER, G.-S. (1967), *Human Capital and the Personal Distribution of Income: An Analytical Approach (Woytinsky lecture)*, Institute of Public Administration, University of Michigan, Ann Arbor, MI.

BEINE, M., F. DOCQUIER and H. RAPOPORT (2008), "Brain drain and human capital formation in developing countries: winners and losers," *Economic Journal*, No. 118, pp.631-652.

BELFIELD, C. and A. FIELDING (2001), "Measuring the relationship between resources and outcomes in higher education in the UK", *Economics of Education Review*, 20, pp.589-602.

BENHABIB, J. and M. SPIEGEL (1994), "The role of human capital in economic development: evidence for aggregate cross-country data", *Journal of Monetary Economics*, Vol. 34, pp.143-173.

BENNAGHMOUCH, S. and J. BOUOYOUR (1998), "Capital humain et croissance économique au Maroc", *LIHRE Working Paper*, Université de Toulouse 1.

BENNAGHMOUCH, S. (2005), *Capital humain, éducation et croissance économique. Le cas du Maroc*, doctoral thesis in Economic Science, Université de Toulouse 1, Toulouse.

BENNAGHMOUCH, S. (2006), "Économie du savoir et employabilité. Quels défis pour le Maroc ?", GDR EMMA report.

BIRDSALL, N. (1995), "Public Spending on Higher Education in Developing Countries: Too Much or Too Little?", *Economics Education Review*, 15, pp.407-419.

BLAUG, M. (1972), "Educated Unemployment in Asia: A Contrast between India and the Philippines," *The Philippine Economic Journal*, Vol. 11, pp.33-35.

BOUDARBAT, B. (2005), "Job-Search Strategies and the Unemployment of University Graduates in Morocco", paper presented at the IZA-EBRD international conference on "Labor Market Dynamics, the Role of Institutions and Internal Labor Markets in Transition and Emerging Market Economies", Bologna University, Bologna.

BOUGROUM, M. and A. IBOURK (2002), "Le chômage des diplômés au Maroc : quelques réflexions sur les dispositifs d'aide à l'insertion", *Formation – emploi*, No. 79, pp.83-101.

BOUGROUM, M. and A. IBOURK (2003), "The effects of job-creation schemes in Morocco", *International Labour Review*, 142, 3, p.341.

BOUGROUM, M. and A. TRACHEN (1997), "Typologie des jeunes chômeurs diplômés à Marrakech. Une étude sur données longitudinales", in Bougroum, M. and P. Werquin (dir. pub.), *Éducation et emploi dans les pays du Maghreb*, Report of international seminar in Marrakech, 24 & 25 October.

BOUTROLLE, C. (2003), *Éducation, croissance et développement : une approche comparative du Bassin méditerranéen et du sud-est asiatique*, doctoral thesis (ed. René Teboul).

BRATSBERG, B. and D. TERRELL (2002), "School quality and returns to education of US immigrants", *Economic Inquiry*, Vol. 40, 2, pp.177-198.

BREWER, D.-J., E. EIDE and R.-G. EHRENBERG (1996), "Does it Pay to Attend an Elite Private College? Cross Cohort Evidence on the Effects of College Quality on Earnings", NBER Working Paper No. W5613, National Bureau of Economic Research, Cambridge, MA.

BÜCHEL, F., A. DE GRIP and A. MERTENS (eds) (2003), *Overeducation in Europe. Current Issues in Theory and Policy*, Edward Elgar Publishing, Cheltenham, UK.

CARNOY, M. (1995), "Rates of Return to Education", in *The International Encyclopedia of Economics of Education*, Pergamon, Oxford, pp.364-369.

CHEVALIER, A. and G. CONLON (2003), "Does It Pay to Attend a Prestigious University?", *IZA Discussion Paper No. 248*, Institute for the Study of Labor, Bonn.

CHIA-YU, H. (2008) "Overeducation and undereducation in Taiwan", *Journal of Asian Economics*, Vol. 19, Issue 2, pp.125-137.

DI PIETRO, G. and A. CUTILLO (2006), "University Quality and Labour Market Outcomes in Italy", *Labour*, 20(1), pp.37-62.

DIÉBOLT, C. and B. EL MURR (2006), *Éducation, croissance et marché du travail au Liban*, research report, CEDRE programme, French and Lebanese Ministries of Foreign Affairs, December.

DOCQUIER, F. and A. MARFOUK (2006), "International Migration by Education Attainment", in Caglar, O. and M. Schiff (dir. pub.), *International Migration, Remittances & the Brain Drain*, World Bank and Palgrave Macmillan, Washington, D.C.

DURU-BELLAT, M. (2006), *L'inflation scolaire*, La République des idées, Le Seuil, Paris.

EL AOUI, N. and M. BENSÂÏD (2005), « Chômage et employabilité des jeunes au Maroc », *Cahiers de la stratégie de l'emploi*, 2005/2006.

EL-MATRAWY, K. and W. SEMMLER (2006), "The Role of Education and Human Capital for Economic Growth in Middle Income Countries: Egypt's Case", *Working Paper* No. 132, Center For Empirical Macroeconomics, Bielefeld University, Bielefeld.

EWODOU, J. and D. VENCATACHELLUM (2006), "An empirical analysis of the rates of return to education in Cameroon", Mimeo, Montréal University and African Development Bank.

FLEISHER, B. (2002), "Higher Education in China: A Growth Paradox?", Mimeo, Department of Economics, Ohio State University, Columbus, OH.

FLEISHER, B. and D.-T. YANG (2004). "China's Labor Market", in Hope, N. (ed.) *Market Reforms in China*, Stanford University Press, Stanford, CA.

GOUX, D. and É. MAURIN (1995), "Origine sociale et destinée scolaire", *Revue française de sociologie*, 36-1, pp.81-125.

GROOT, W. and H. MAASSEN VAN DEN BRINK (2000), "Overeducation in the labor market: a meta-analysis", *Economics of Education Review*, 19/2, pp.149-158.

GUETAT, I. and SERRANITO, F. (2007), "Income convergence within the MENA countries: A panel unit root approach", *The Quarterly Review of Economics and Finance*, Vol. 46 (5), pp.685-706.

GURGAND, M. (2005), *Économie de l'éducation*, Éditions La Découverte, Paris.

HANUSHEK, E.-A. and D.-D. KIMKO (2000), "Schooling, Labor-Force Quality, and the Growth of Nations", *The American Economic Review*, Vol. 90, No. 5 (December), pp.1184-1208.

HANUSHEK, E.-A. and LUQUE, J. (2003), "Efficiency and equity in schools around the world", *Economics of Education Review*, Vol. 22(5), pp.481-502.

HEYNEMAN, P. (1996), *The Quality of Education in MENA*, World Bank, Washington, DC.

HOROWITZ, A. and C. SCHENZLER (1999), "Returns to general, technical and vocational education in developing countries: recent evidence from Suriname", *Education Economics*, Vol. 7, No. 1, pp.5-19.

HOSSAIN, S.-I. (1997), "Making Education in China Equitable and Efficient", *Policy Research Paper* No. 1814, China and Mongolia Department, World Bank, Washington, DC.

IRIZARRY, R. (1980), "Overeducation and Unemployment in the Third World: The Paradoxes of Dependent Industrialization", *Comparative Education Review*, Vol. 24, No. 3 (October), pp.338-352.

JAMISON, E.-A., D.-T. DEAN and E.-A. HANUSHEK (2007), "The effects of education quality on income growth and mortality decline", *Economics of Education Review*, Vol. 26(6), pp.771-778.

KRUEGER, A. and M. LINDAHL (2001), "Education for Growth: Why and for Whom?", *Journal of Economic Literature*, Vol. 39(4), pp.1101-1136.

LAMBROPOULOS, H. and E. KARADJIA (1999), "The Financing and the Economics of Higher Education in Egypt", Mimeo, World Bank, Washington, D.C.

LUCAS, R. (1988), "On the Mechanics of Economic Development", *Journal of Monetary Economics*, 22, pp.3-42.

MACHIN, S. and A. MANNING (1997), "Minimum wages and economic outcomes in Europe", *European Economic Review*, Vol. 41(3-5), pp.733-742.

MANKIW, G. D. ROMER and D. WEIL (1992), "A contribution to the empirics of economic growth", *Quarterly Journal of Economics*, Vol. 107, pp.407-437.

MAROUANI, M.-A. (2000), « Ouverture commerciale et emploi : un modèle d'équilibre général avec salaires d'efficience appliqué à la Tunisie », *Revue économique*, 51, 3, pp.557-569.

MEGHIR, C. and M. PALME (2005), "Educational reform, ability and family background", *American Economic Review*, 95, pp.414-424.

MINCER, J. (1958), "Investment in Human Capital and Personal Income Distribution", *Journal of Political Economy*, University of Chicago Press, Vol. 66, p.281.

MINCER, J. (1974), *Schooling, Experience, and Earnings*, Columbia University Press, New York.

MINGAT, A. (1995), "Towards improving our understanding of the strategy of high-performing Asian economies in the education sector", paper presented at the Asian Development Bank Conference on the Financing of Human Resources in Asia, November 17-18, 1996, Manila, Philippines.

MINGAT, A. and J.P. TAN (2003), "On the mechanics of progress in primary education", *Economics of Education Review*, Vol. 22(5), pp.455-467.

MOROTE, E.-S. (2004), *Higher Education, Employment and Economic Growth: Mexico and Peru*, Latin American Studies Association (LASA), Las Vegas, NE, October 7-9 (Electronic Publication, Latin American Studies Association Database).

NELSON R. and E. PHELPS (1966), "Investment in Humans, Technological Diffusion and Economic Growth", *American Economic Review*, Vol. 56(2), pp.67-75.

OECD (2002), *Financing Education – Investments and Returns. Analysis of the World Education Indicators*, UNESCO and OECD, Paris.

OECD (2007), *Regards sur l'éducation*, OECD, Paris.

OREOPOULOS, P. (2006), "The compelling effects of compulsory schooling: evidence from Canada", *Canadian Journal of Economics*, Vol. 39(1), pp.22-52.

PAGE, L. (2005), "Des inégalités sociales aux inégalités scolaires : choix éducatifs et Prospect Theory", *Revue économique*, Vol. 56, pp.615-623.

PATRINOS, H.-A., C. RIDAO-CANO and C. SAKELLARIOU (2006), "Estimating the returns to education: Accounting for heterogeneity in ability", *Policy Research Working Paper*, October, World Bank, Washington, D.C.

PAUL, J.-J. (2007), *Économie de l'éducation*, Armand Colin, Paris.

PISSARIDES, C. and M.-A. VÉGANZONÈS-VAROUDAKIS (2005), "Labor markets and economic growth in the MENA region", LSE Working Paper also published in 2007 in Nugent, J. and H. Pesaran (eds), *Explaining Growth in the Middle-East. Contributions to Economic Analysis*, Elsevier, Amsterdam.

PLASSARD, J.-M. and S. BEN SEDRINE (1999), *L'insertion professionnelle des jeunes en Tunisie*, Presses de l'université de Toulouse 1, Toulouse.

PRITCHETT, L. (2001), "Where Has All the Education Gone?", *World Bank Economic Review*, Vol. 15 (3), pp.367-391.

PSACHAROPOULOS, G. (1993), "Returns to investment in education: a global update", *Policy Research Working Paper Series*, No. 1067, World Bank, Washington, D.C.

PSACHAROPOULOS, G. and H.-A. PATRINOS (2002), "Returns to investment in education: a further update", *Policy Research Working Paper Series 2881*, World Bank, Washington, DC.

PSACHAROPOULOS, G. and H.-A. PATRINOS (2004), "Returns to investment in education: a further update", *Education Economics*, Vol. 12(2), pp.111-134.

QUENUM, C.-V.-C. (2008), *Financement public des systèmes éducatifs et croissance économique dans les pays en voie de développement : cas des pays de l'Union économique et monétaire ouest-africaine (UEMOA)*, thesis, Université de Bourgogne, Dijon.

QUINN, M.-A. and S. RUBB (2006), "Mexico's labor market: The importance of education-occupation matching on wages and productivity in developing countries", *Economics of Education Review*, Vol. 25(2) (April), pp.147-156.

ROMER, P. (1990), "Endogenous technological change", *Journal of Political Economy*, Vol. 98, No. 5, pp.S71-S102.

ROSENZWEIG, M.-R. (2006), *Higher Education and International Migration in Asia: Brain Circulation*, December, Yale University, New Haven, CT.

RUMBERGER, R.-W. and S.-L. THOMAS (1993), "The Economic Return to College Major, Quality and Performance: A Multilevel Analysis of Recent Graduates", *Economics of Education Review*, 12(1), pp.1-19.

TALLMAN, E.W. and P. WANG (1994), "Human Capital and Endogenous Growth: Evidence from Taiwan", *Journal of Monetary Economics*, Vol. 34 (1), pp.101-124.

TILAK, J.-B.-G. (2003), "Higher Education and Development," in Kleeves, J.-P. and R. Watanabe (eds), *Handbook on Educational Research in the Asia Pacific Region*, Kluwer Academic Publishers, Dordrecht, pp.809-826.

TZANNATOS, Z. and G. JOHNES (1997), "Training and skills development in the East Asian newly industrialised countries: a comparison and lessons for developing countries", *Journal of Vocational Education & Training*, 49:3, pp.431- 453.

VAN ELKAN, R. (1996), "Catching up and slowing down: Learning and growth patterns in an open economy", *Journal of International Economics*, Vol. 41 (1-2), pp.95-111.

VEGANZONES, M.-A. (1997), *Argentina in the 20th Century: An Account of Long-Awaited Growth*, OECD Publications, Paris.

WAHBA, J. (2000), *Returns to education and regional earnings differentials in Egypt*, University of Southampton Discussion Papers in Economics and Econometrics, 0025, Southampton.

WOLBERS, M.-H.-J. (2003), "Job Mismatches and their Labour-Market Effects among School leavers in Europe", *European Sociological Review* 19(3), pp.249-266.

WORLD BANK (2000), *Higher Education in Developing Countries: Peril and Promise*, World Bank, Washington, D.C.

WORLD BANK (2003), "Construire les sociétés du savoir. Nouveaux défis pour l'enseignement supérieur", Laval University Press and World Bank, Washington, D.C.

WORLD BANK (2007), "Un parcours non encore achevé : la réforme de l'éducation au Moyen-Orient et en Afrique du Nord", World Bank, Washington, D.C.

WORLD BANK (2008), "Youth unemployment, existing policies and way forward: Evidence from Egypt and Tunisia", mimeo, World Bank, Washington, D.C.

WORLD BANK and TUNISIAN MINISTRY OF EMPLOYMENT (2007), "Dynamique de l'emploi et adéquation de la formation parmi les diplômés universitaires", joint document of the *Ministère de l'Emploi et de l'insertion professionnelle des jeunes* and the World Bank, World Bank, Washington, D.C.

ZHANG, L. (2005), "Do Measures of College Quality Matter? The Effect of College Quality on Graduates' Earnings", *The Review of Higher Education* 28:4, pp.571-596.

Part 4

Financing Higher Education: A Review of the Economic Literature

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Introduction

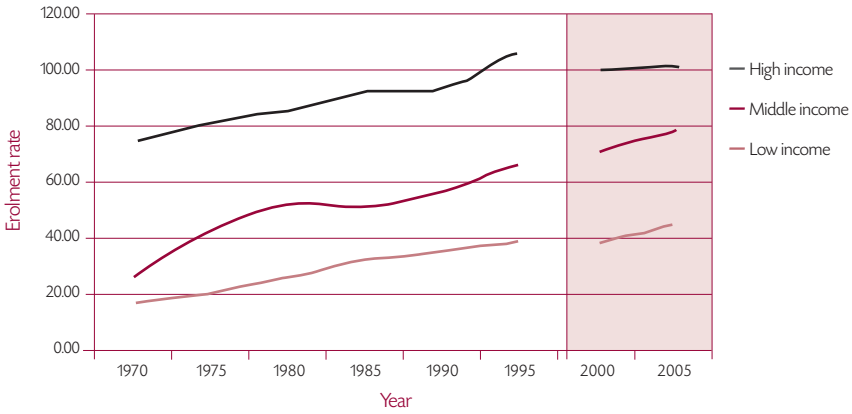
This article presents both theoretical and empirical examples of the economic research literature that shed light on the modes of financing higher education. Although, since the 1960s, economists have regarded education as a crucial factor for economic growth, in the 1990s endogenous growth theories began to focus more specifically on higher education. These theories, in fact, underline the importance of innovation (notably Romer, 1986; or Aghion and Howitt, 1998), for which highly skilled labour is instrumental, whether this be innovation in the strict sense of the term or the adaptation of innovations.

Whilst the democratisation of higher education is already firmly rooted in developed countries, it is now gradually developing in middle-income countries, the ground for this having been prepared by a substantial expansion of secondary education. Figure 27 shows the rate of secondary school enrolment by country group over the last 30 years and more.^[95] The rates can be seen to rise steadily during this period. In middle-income countries, rates almost double between 1970 and 1980, rising from 27 per cent to 52 per cent, to reach 78 per cent in 2005. In low-income countries, there is also substantial progress, but the pace of catch-up is slower: it took twenty years for their enrolment rate to increase from 33 per cent to 45 per cent.

[95] We use World Bank data. This kind of data is known to be weak but discussion of this point is beyond the scope of this paper. It should be recalled that the country perimeter is not totally constant from one year to another due to data gaps, which means that only general trends count. Moreover, there is a series break between 1995 and 2000 due to changes in definitions.

Figure 27

Secondary school enrolment (% gross)

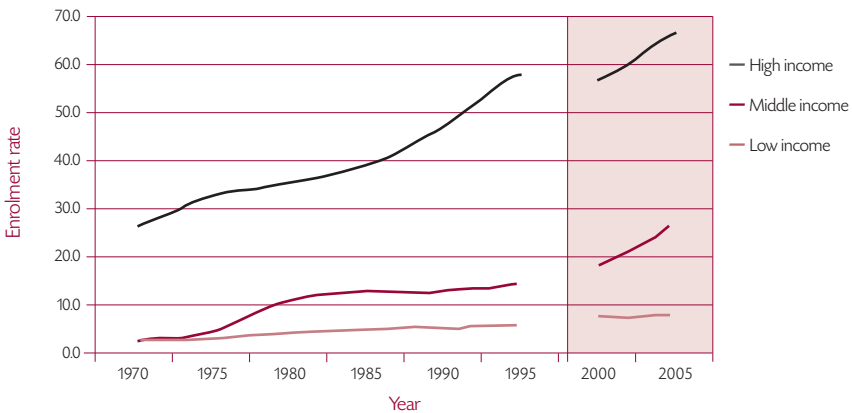


Source: WDI 2004 and 2008.

Overall, the extension of these advances into higher education has been more limited (Figure 28). Only high-income countries have made great headway in their higher education enrolment rates, from 26 per cent in 2006 to almost 67 per cent in 2005, with strong growth especially from the 1990s onwards. Middle-income countries have followed the trend, but to a lesser extent and at a later stage, beginning in the late 1990s: their enrolment rate rose from 11 per cent in 1980 to 27 per cent in 2005. No real take-off is observed in the low-income countries.

Figure 28

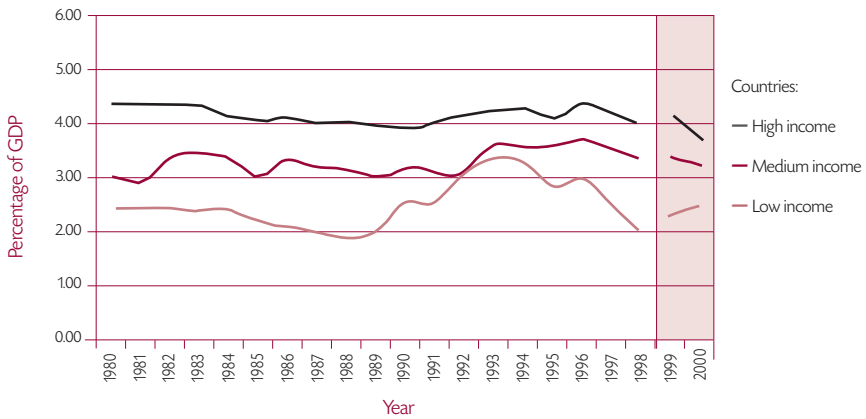
Tertiary school enrolment (% gross)



Source: WDI 2004 and 2008.

Figure 29

Public spending on education (% of GDP)



Source: WDI 2004 and 2008.

These trends and their sustainability – or even their acceleration for middle-income countries – raise questions about the deployment of funds required to support such outcomes. There is no data available that would allow us to describe how higher education expenditure will evolve for these different groups of countries. Nevertheless, when short-term movements are ignored, what is striking are the relatively constant levels of government expenditure on education as a percentage of GDP: around 3 per cent for poor countries, 4 per cent for middle-income countries and 5 per cent for rich countries (Figure 29). These rates do not show any strong trends, except perhaps for middle-income countries during the 1990s. Therefore, in absolute value the funding dedicated to education is increasingly higher but primarily due to economic growth: the rate of public investment in education is more or less constant.

In middle-income countries, the higher education enrolment rate almost tripled between 1980 and 2005, whereas GDP nearly doubled. As the national effort to support education is relatively constant, and short of a massive reallocation of resources to higher education, it is highly likely that the expansion of education has been accompanied by a reduction in per-student expenditure. Table 14 provides evidence of this, despite the data gaps, and also shows that high-income countries have experienced the same phenomenon.

Table 14 *Public Expenditure per Student
(% of GDP per capita)*

	1980	1985	1990	2000	2004
Middle-income countries					
Secondary education	-	-	-	16.6	171
Higher education	719	615	-	372	259
High-income countries					
Secondary education	19.7	33.6	31.0	23.2	24.8
Higher education	48.7	56.8	47.1	30.7	29.0

Source: WDI 2004 and 2008.

Table 14 shows that per-student expenditure for higher education outstrips that for secondary education, but that the gap, which was substantial 30 years ago, has greatly narrowed over time. In middle-income countries, the state budget per student drops from 72 to 26 per cent of per-capita GDP. The question thus raised is clear: is it satisfactory to obtain a rise in educational attainment if this is coupled with decreasing per-capita expenditure or should additional resources be mobilised and, if so, how is this to be done?

Recent research convincingly argues that raising educational attainment has no impact on growth if accompanied by a decline in educational quality. Hanushek and Kimko (2000) use measures of students' cognitive achievement to show that the quality measured is more closely correlated with growth than the quantity of education, measured in years of schooling. Yet it should be remembered that spending on education is not a failsafe guarantee of quality, which would imply that maintaining a high level of spending is not necessarily a priority. Not enough is known about the correlation between per-student expenditure, on the one hand, and the quality of education, on the other hand, and the topic incites a great deal of controversy in the literature. The latest OECD statistics (from PISA, TIMSS and PIRLS surveys) underline that countries with education systems of equivalent "quality" (with equivalent outcomes) have not necessarily experienced the same trends in terms of student numbers or the amount and structure of financing.

However, major advances in access to education do not necessarily lead to significantly better outcomes: certain Latin American countries that are comparable with Asian countries in terms of increasing enrolment rates achieved much poorer outcomes; this was the case for example for Thailand and Vietnam compared to Argentina and Peru (Glewwe, 2006).

For reasons of data availability, we have so far presented public expenditure, but private spending, by the students themselves or by their families, is sometimes an important component of total education expenditure. It is difficult to obtain consistent figures for developing countries, but Table 15 illustrates the variety of situations across OECD countries ranging from Korea, the United States or Japan, where private spending represents from 57 per cent to over 80 per cent of higher education expenditure, to the Scandinavian countries where, on the contrary, it represents a negligible share. This means that sometimes there is probably some leeway to mobilise private resources. Is this an efficient strategy? This is one of the questions that the economic literature is seeking to answer.

Table 15 *Distribution of public and private sources of funds in the OECD*

Relative proportions of public and private expenditure on educational institutions (2001)

OECD Countries	All levels of education		Tertiary education	
	Public sources	Private sources	Public sources	Private sources
North America				
Canada	78.2	21.8	58.6	41.4
United States	69.2	30.8	34.0	66.0
Pacific countries				
Australia	75.6	24.4	51.3	48.7
Japan	75.0	25.0	4.1	56.9
European Union				
Austria	94.4	5.6	94.6	5.4
Germany	81.4	18.6	91.3	8.7
Belgium	93.0	7.0	8.1	15.9
Denmark	9.1	3.9	97.8	2.2
Spain	87.8	12.2	75.5	24.5
Finland	97.8	2.2	96.5	3.5
France	92.0	8.0	85.6	14.4
Greece	94.2	5.8	99.6	0.4
Ireland	92.2	7.8	84.7	15.3
Italy	90.7	9.3	77.8	22.2
Netherlands	90.9	9.1	78.2	21.8
Portugal	98.5	1.5	92.3	7.7
United Kingdom	84.7	15.3	71.0	29.0
Sweden	96.8	3.2	87.7	12.3

Source: OECD (2005).

OECD Countries	All levels of education		Tertiary education	
	Public sources	Private sources	Public sources	Private sources
Other OECD countries				
Korea	57.1	42.9	15.9	84.1
Hungary	89.0	11.0	77.6	22.4
Iceland	91.7	8.3	95	5.0
Mexico	84.6	15.4	70.4	29.6
Norway	95.9	4.1	96.9	3.1
Slovak Republic	97.1	2.9	93.3	6.7
Czech Republic	90.6	9.4	85.3	14.7
OECD average	87.8	12.2	78.2	21.8

Source: OECD (2005).

Faced with the rise in student numbers, the main policy thrusts in recent years have been to encourage private sector initiatives and reduce government regulation: education costs have been increasingly shared with the students and their families, through tuition fees and student loans in particular. However, not all countries have taken this approach on board and, when it has been adopted, this has been to very varying degrees. In most countries, there is ongoing debate about centralised or decentralised schemes, public or private funding, and state intervention or autonomy for universities.

Johnstone (1998) explains how key reforms in higher education funding have been implemented since the early 1990s in response to the massive increase in student numbers. Very dissimilar countries have nonetheless adopted very similar approaches, and these can be grouped into three broad categories:

- Supplementation of public or governmental revenues by non-governmental revenues: loans, entrepreneurial activities for universities, philanthropy, building partnerships with the private sector...
- Reform of public sector financing: devolution of management and spending authority, budget reforms, greater transparency and stable rules for government budgets...
- Restructuring of higher education institutions.

Johnstone (2004) focuses his study on tuition fees and student loans in Sub-Saharan Africa. His starting point involves two major problems faced by all higher education institutions: the high increase in the per-student cost in absolute values (but not as a percentage of GDP, as reported above) and the pressure to achieve increasingly

high enrolment rates. He considers these difficulties to be particularly acute in Sub-Saharan Africa, where the rationing of university seats has become critical and educational quality is falling. The reform agenda thus contains two key measures: expanding the funding from other-than-government sources and lowering the financial barriers to accessing higher education. The author takes a clear stand concerning the economic, social and political need to find other-than-government sources of funding. Nevertheless, he reminds us of the reluctance of the countries in Sub-Saharan Africa to resort to these new sources of revenue, which, in his view, is rooted in both the European colonial legacy and Marxist legacy of these countries.

Thus, although there are a great variety of modes to finance higher education, it can be observed that the inflation of the student population has nonetheless forced all countries to ponder on the structure and nature of this funding and to invent new solutions to guarantee the efficiency and equity of their system. Private funding is gaining greater legitimacy, as evidenced by its growth in many countries over recent decades. However, this increase mainly concerns developed countries because, as several authors have underlined, the adoption of new systems is more complicated in developing countries.

What emerges as the strategic difficulty in supporting increased educational attainment is how to obtain additional resources in a setting of constrained public financing, without generating irreversible inequalities. We will seek to use the approach of economic analysis, not with a view to proposing direct solutions to these issues, but rather to present conceptual frameworks and empirical evaluations allowing us to anticipate the impact of various interventions on individual behaviour and understand the reasons for state intervention and, hence, the consequences a lesser role would produce.

We will begin by presenting the *human capital theory* model (section 2), which is the classic benchmark for any theoretical or empirical thinking on this topic. We will then discuss the theoretical arguments used to justify state intervention in education financing. Section 3 will review the empirical estimates that measure an individual's sensitivity to the cost of education: the order of magnitude of this parameter cannot be determined theoretically, but it is decisive for anticipating the impact of a policy affecting tuition fees or financial aid for schooling. We will then address the debate on what effects these forms of assistance have on equality. In section 4, we will examine the literature that seeks to test for the existence and measure the magnitude of credit constraints, which stand as the prime justification for state intervention. To conclude, in section 5 we will present experiments with income-contingent loans (ICLs), which have been introduced in some dozen countries. These form a type of intermediate

solution between a government loan system enabling credit market imperfections to be overcome, a risk insurance system for individuals who prolong their studies, and a scholarship/grant system.

4.1. Economic theories on the financing of education

The analysis of individual (and family) behaviour with respect to education demand was developed in the 1960s by Gary Becker and Théodore W. Schultz under the name *human capital theory*; this is the reference framework for the literature. We then discuss the theoretical justifications cited in support of state intervention in education. The individual behaviour patterns derived from the human capital theory still constitute the baseline data of this literature, but the scope has been enlarged to include the description of macro-economic equilibria, in which prices, quantities or political choices result from the interaction between heterogeneous agents. We will ask to what extent these analyses provide insights on why public authorities intervene in higher education (or more widely in post-compulsory education), in which ways, and what effects this intervention has on income distribution.

4.1.1 Demand for schooling: human capital theory

First, we present the basic principles of the theory of education demand developed by Becker in 1967. This model was later enhanced by Becker and Tomes (1986), who integrated the effects of family relationships, credit constraints and sources of heterogeneity, thus allowing a relatively comprehensive analysis of the implications for efficiency and inequality. In the perspective of adapting education decision models to the realities of developing countries (DC), we conclude with a discussion on more recent evolutions.

- *Education as an investment in man*

The term “human capital”, which was behind the success of Becker’s book, had already been proposed by Schultz in 1960: “*I propose to treat education as an investment in man and to treat its consequences as a form of capital... I shall refer to it as human capital*”. This theory treats education as an investment, because continuing one’s studies means paying tuition fees and foregoing an immediate income (which could be earned by entering the labour market), in the hope of a higher income at a future time. Education thus contributes to the production of human capital.

The analogy with physical capital is largely metaphorical, chiefly because human capital is intangible and is not transferrable. It does, however, allow the economic reasons for education decisions to be represented using the tools of investment theory. The assumption of perfect financial markets plays an essential role in the

canonical model: it means that individuals can lend and borrow freely at a single interest rate. In this context, individuals simply expect an education decision to maximise their lifetime earnings.

The agents must then arbitrate between the cost of education – notably the opportunity cost corresponding to the wages that they will have to forego – and the amount of future additional income that their studies should bring in. It is rational to continue studying as long as the cost of an additional year of schooling remains below the future benefit that this will create. A major component of this cost is the potential earnings, and these increase in proportion to the level of education attained. Thus, the marginal cost of schooling becomes increasingly high. Under the assumption that there are limits to human capital accumulation, the return to the time spent at school or university will decrease. The optimal level of schooling is therefore attained when this marginal return reaches the marginal cost. This is a general rule of investment behaviour.

Interest rates play a central role here, because the present value of future earnings depends directly on the interest rate. An increase in rates will reduce the present value of the future return and a fall will increase it. According to this representation of behaviour, a high interest rate thus leads to a low demand for education and inversely. Another prediction of this model needs to be highlighted: the education decision will not be affected by the initial level of wealth. In fact, the described behaviour seeks to maximise all earnings throughout the individual's life-course: to add initial wealth to total earnings changes nothing in the above-mentioned strategy.

The hypothesis that education is valued simply as an investment is obviously very strong and it is introduced primarily to allow a clear analysis of this aspect of behaviour, which has so far been little explored. Very early on, Shaffer (1961) underlined that education could be also valued for itself, in the same way as a consumer good, and that it is consequently very difficult to separate the share of human capital resulting from investment and the share that comes from a desire to be educated for sheer pleasure. One can thus speak of a “symbolic” consumption of education. Banerjee (2004) studies the implications of such an assumption on decisions about educational investment. He shows that, even in the framework of the Beckerian model with perfect credit markets, the symbolic consumption of education modifies the model's basic predictions. In fact, the pleasure (or lack of pleasure) that schooling brings per se should be added to the wage return to education. In this case, even when faced with identical financial parameters, agents will desire different levels of education owing to the variable utilities that their schooling period will bring.

- *Family dynasties*

The reference model does not capture disparities in educational attainment, which are nonetheless a salient and unchanging reality in all countries, with inequalities being even higher in poor countries. There is also a close link between individual income distribution and the persistence of inequalities over generations and between families. Sociologists have demonstrated the importance of parents' social characteristics for their children's educational and occupational careers (Blau and Duncan, 1967). As far as education is concerned, Bourdieu and Passeron (1964 and 1970), in *Les Héritiers* (1964) and *La Reproduction* (1970), very clearly show the link between what they call "cultural heritage" and educational achievement.

There is no need to query the perception of education as an investment to recognise the heterogeneity of educational attainment. Building on Becker's 1967 contribution (known as the Woytinski Lecture), Becker and Tomes (1986) propose a broader model of human capital that adds two important elements: they describe the education decision as a family decision rather than simply an individual one and they introduce two sources of heterogeneity: the relative access to capital markets, and the notion of "ability". They then develop a theory of "intergenerational mobility", the core of which is an analysis of the relationships between human capital investment and wealth.

Parents transmit a part of their own ability to their children, for example, through cultural endowments. They can also influence the human capital level and wealth of their children. The parents of high-ability children will invest more in their education because it represents a more profitable investment. Thus, even when financial markets are perfect, inequalities in ability continue to exist and translate into disparities in educational attainment. These inequalities are imperfectly maintained over generations and, in the medium term, lead to social mobility. Ultimately, inequalities in educational attainment are maintained but, since they are linked only to "ability" inequalities, the inequalities between dynasties are reduced. In addition, Becker and Tomes show that, in this framework, public expenditure on education is useless insofar as it totally substitutes for private spending without producing any impact on children's educational attainment.

When financial markets are imperfect, the conclusions are very different. The origin and nature of financial market imperfections will be discussed later. In Becker and Tomes' model, this simply means that it is not possible to borrow in order to finance schooling. In this case, the amount that a family can invest in their children's education will depend directly on parental wealth. Inequality of educational attainment is thus greater and persists over generations. Public expenditure then becomes doubly

useful: it reduces inequalities and, by giving credit-constrained families access to education, it increases the total level of incomes in the economy. Here, state intervention seems able to improve both economic efficiency and equity. However, we shall see later that the models that explicitly represent both the equilibrium of the economy as a whole, with or without state intervention, and the targeted taxation to fund this intervention do not always reach this conclusion.

- *Altruism*

Parents' investment in their children's education is a stylised fact and therefore needs no justification. On the other hand, the fact of considering individuals as altruistic is already a modelling choice. As a result, children's well-being is made to directly intervene in the utility of the parents. In the Becker and Tomes model (1986), this altruism is translated by specifying particular preferences. The authors consider that perfect altruism exists when individuals attach the same weight to the sum of their dynasty's utilities as to their own utility.

It is certainly possible to imagine other prevailing intergenerational relationships in a society. Banerjee (2004), for example, studies the way in which the predictions of the model are modified when other kinds of preference are considered. He proposes an "imperfect" altruism or "inter-generational contracting" to replace the "perfect" altruism posited by Becker and Tomes. By imperfect altruism, he is referring to a form of altruism that causes an individual to care only about the utility of a certain number of future generations. As for the concept of inter-generational contracting, this intervenes when individuals are not deemed to be altruistic.

Banerjee analyses the case where altruism and a bi-generational contract are both present. He shows that as soon as symbolic consumption of human capital is included in individual preferences, education decisions cannot be represented as purely investment decisions. Thus, even if the credit market is perfect, unequal investment in human capital occurs when incomes are distributed unequally among the population.

- *Family trade-offs in children's education*

Until now, the family has been modelled in a simplistic way with one parent and one child. However, the trade-offs with respect to siblings in a household is a major source of questions for family economists, especially in developing countries. Becker and Tomes therefore explicitly introduce families with several children into the model.

Children contribute in the same way to their parents' utility but are not necessarily identical. In wealthy families, parents can invest more in the human capital of their highest-ability children and compensate the other siblings by bequeathing more

monetary wealth to them. Poor families, who can only bequeath human capital to their children, are therefore faced with a dilemma: they must choose between efficiency (investing more in the highest-ability children) and equity (investing in the other children).

In real life, siblings are not all born at the same time, as fertility is a dynamic process. Children are therefore distinguished not only by their abilities but also by their order of arrival. In the case of a low-income credit-constrained family, this characteristic is not without consequence. Jacoby (1994) shows that the wider the age-gap between two siblings, the higher the human capital investment for both of them. The spacing of siblings in fact helps to lessen credit constraint. The wider the gap, the smaller the overlap of the two children's school years, which increases disposable income. The first- and last-born in a family are also at an advantage compared to their siblings since, assuming a constant home-leaving age, on average they live in households with a lower number of siblings. However, the empirical literature documenting education strategies for different siblings in families in developing countries is not very abundant.

Overall, the analysis of behaviour with respect to investment in education, which was introduced by Becker and further developed by Becker and Tomes, highlights various structuring elements. When education is interpreted as being an investment, from the point of view both of society and the individual, the theoretical possibility opens up that individual behaviour can conform to what is required for overall economic efficiency. If, on the other hand, the demand for education merely reflects individual propensities for study, it would be unlikely to adjust to the economy's needs for skilled labour. Yet, by stressing the crucial role of interest rates and, more broadly speaking, the presence of financial markets, this theory sets out the general conceptual framework for discussion on the reasons and forms of state intervention in education.

4.1.2 *Theories of state intervention in education*

In diverse forms and to differing degrees, state intervention in higher education funding is common to all education systems. For the economist, this situation automatically constitutes a problem to be elucidated. In fact, public sector economy is structured by an abstraction—known as the “*first theorem of welfare economics*”: this states that, in a perfectly competitive market economy, prices (including wages) would be determined in such a way that it would be impossible to improve the situation of one economic agent without worsening that of another. State intervention would therefore not permit optimal efficiency for the functioning of the economy relative to market equilibrium. A constructed discourse on state intervention must thus precisely describe the differences with respect to this reference model that justify or explain state intervention and, at the same time, the forms that this should take.

The main failure studied in the literature on public financing of education is the imperfection of financial markets. As we have seen, in a theoretical tradition that analyses education decisions as investment behaviour, financial markets necessarily play a pivotal role. The possibility for each individual to borrow freely at market rate, which is the marginal rate of return of other potential investments, ensures that all socially profitable investments in education will be made, regardless of the initial resources of a young person or his or her family.

But, if one is attentive to the fact that education decisions are taken in a risky context (the risk of passing or failing exams, the risk of finding or not a job that meets wage expectations), the absence or imperfection of the insurance market may well be a source of *laissez-faire* inefficiency and serve to justify state intervention. Thinking on income-contingent loans stems from this analysis.

Lastly, a broad strand of the literature adopts a positive rather than normative approach and asks why, in practice, state intervention takes place without efforts being made to determine its optimal level. These theories examine decisions taken in a majority-vote system, where each agent votes according to the utility that he or she will gain from a public measure.

In all cases, if in the tradition of public economy the prime argument justifying state intervention is that of efficiency, this intervention implies a system of taxation and subsidies. Their effects on inequality come under constant analysis, and a complex question runs through the related literature: can state intervention make the allocation of resources to education more efficient and, at the same time, provide greater equality of income distribution?

The presence of externalities is another circumstance in which markets are unable to reach economic efficiency, and which then justifies state intervention, usually in order to correct market failures through taxation and subsidies. The idea that such education externalities exist is often put forward and forms the cornerstone of a strand of economic growth theories on what is called “endogenous growth”. This idea seemingly furnishes a direct argument to justify public funding. However, although this argument cannot actually be refuted, it is usually deemed to be *ad hoc*, simply because there is no compelling empirical evidence of the effective role of these externalities. It would, in fact, be necessary to prove that the wage premium paid to the most qualified workers does not reflect the entirety of the service they render to the economy. We thus mention this argument solely for the record. In section 3, we present more detailed arguments for which we can discuss empirical facts that either confirm or counter them.

- *Imperfect financial markets*

A good many economists agree that financial markets are imperfect, especially in developing countries, and many theories of underdevelopment are based on such assumptions: the absence of financing opportunities leads to under-investment which in the long run is detrimental to growth. Classically, these constraints are considered to be particularly strong when it comes to financing human capital, which does not constitute tangible collateral and where beneficiaries have a high degree of mobility (Friedman, 1955).

Fender and Wang (2003) have constructed detailed models to analyse the nature of the problem. In one version of their model, it is supposed, for example, that lenders can obtain repayment of their loan when the individual, after effectively investing in education, has the means to honour his or her debts. But it is also assumed that the lender has no guarantee that the money will in fact be spent on education. This contractual setting of moral hazard is classically analysed in economics in many different contexts. The imperfection of credit markets arising from *moral hazard* takes the form of credit-rationing. It also has a consequence: individuals who, in a world of perfect financial markets, would invest in education do not do so when financial markets are imperfect. In this case, there is a less than optimal level of education.

Credit market imperfection can be represented in another way, by supposing, for example, that even individuals who have invested in education and become rich enough to repay their investment cannot be obliged to do so. Many studies drastically simplify the problem by assuming that it is impossible to borrow in order to finance education. Again, this results in inefficiency.

Drawing on the model of Becker and Tomes (1979 and 1986) presented earlier, we can introduce family dynamics and make the possibilities of investing in education dependent on parental resources. Loury (1981) shows that, even without inheritance, wealth inequalities can be maintained indefinitely when financial markets are imperfect. This approach opens the way to a sphere of macroeconomics that analyses how the accumulation of education in the economy, and hence growth, depend on the initial distribution of wealth within the population. Galor and Zeira (1993) have also demonstrated that a wide range of stable growth paths can exist, depending on the initial distribution of wealth. This is one approach to understanding the persistence of wealth disparities across countries and one way of widening the implications of financial market imperfections to include more than static economic inefficiency.

- *Correcting financial market imperfections*

State intervention is justified by the imperfection or absence of markets. The theoretical normative literature provides a more in-depth analysis of the forms that this intervention can take, and raises a key question: who should be taxed, who should assistance be channelled to, and how? The answers depend on precise models that simplify reality in different ways.

Loury (1981) analyses dynasties in which parents have incomplete information about their children's abilities. This creates uncertainty as to the outcome of investing in their education, and against which risk-averse households wish to insure. This explains why delivering a homogeneous level of education, funded by taxation, improves the welfare of all agents, while at the same time reducing income dispersion. Here, the framework is one in which public policy increases both efficiency (no one loses) and equity. It is contingent on the highly specific circumstance of families being uncertain as to their children's educational outcomes and also of giving a value to insurance coverage.^[96]

In other approaches, the interplay between efficiency and equity is more complex. In Fender and Wang's (2003) model, the government can finance education through taxation. This policy can deliver the level of education that perfect financial markets would have produced by enabling credit-constrained individuals to purchase education. However, the same outcome could be achieved equally well by taxing only those individuals that benefit from education, rather than the non-educated. Both equilibria are possible but, while they guarantee high educational levels, they do not ensure that all agents will gain. This opens up a space for public policy decisions that may depend on what importance is attached to the welfare of the different agents and on how easy it is to tax individuals with the highest human capital and the greatest mobility.

Fender and Wang make the very stylised assumption that tax is a function of the level of education, and not of income. De Fraja (2002) proposes an enhanced economic model that is more complex. He describes dynasties whose children have the ability to succeed in their studies and, in this case, their ability is recognised by the family. Heterogeneity is developed for two parameters: parental resources and the children's learning abilities. When children are bright, their families are prepared to pay for their studies but, in the absence of financial markets, this limits the level of

[96] In the same vein, Garratt and Marshall (1994) and Gurgand (1998) explain public funding by the desire of cash-constrained households to ensure that their children will be able to study should they turn out to be clever enough. This is also an insurance mechanism: parents are ready to pay tax so that they will have nothing further to pay should their children prove capable of continuing their studies.

funding to their resources. Thus the poorest, whatever their abilities, never study and the richest always do; in between the two, only the brightest continue their schooling. State intervention is realistically represented by a tax, which is uniquely a function of income, and by education subsidies, which are a function of the duration of the studies chosen by the young person and his or her family.

De Fraja derives tax and financing rules that maximise the aggregate utility of agents (known as the “utilitarian” rule). This rule guarantees a kind of efficiency: optimally, it is impossible to increase the benefit of one agent without reducing that of another – in other words, no resource is wasted. The optimal rule opens up the option of pursuing studies to families that would have abandoned this possibility due to borrowing constraints, without discouraging any family that would have chosen education without state intervention. Yet, paradoxically, under this system the poorest households make a higher net contribution than rich households. This is because the introduction of public funding is of more benefit to the poorest households: they are more inclined to pay. They can then be made to contribute more without substantially reducing their benefits. The theoretical argument is even more compelling here as it appears to be consistent with the anti-redistributive logic of public educational financing that seems to be observed in different countries (*infra*).

- *Redistributive logics*

As we have seen, state intervention is justified by arguments for efficiency: ensuring the highest possible level of education by seeing to it that households are minimally constrained by the absence of financial markets. But exactly what form education subsidies will need to take and what distributive effects this intervention will produce cannot be described with the same degree of generality. The debate remains very open in the literature and raises discussions with no direct link to the question of imperfect financial markets: can public financing of education serve a simple goal of redistribution? Hare and Ulph (1979) insist that the taxation induces sub-optimal behaviour and that the financing of education is a second fiscal mechanism for correcting certain distortions.

Yet, other studies do not consider that education subsidies can be used as a redistributive tool. In a somewhat radical contribution, Johnson (1984) analyses an economy in which there is a complementarity between skilled workers and unskilled workers: if there is no longer any skilled labour, the marginal productivity of unskilled labour (and thus these workers’ wages) is higher. He shows that, paradoxically, the welfare of the unskilled group can be maximised when it shoulders, through an income tax, the subsidies for the other group’s education. In fact, it is to the benefit of the unskilled workers that the other group’s education should reach as high a level as possible and the leverage is all the stronger as human capital is not taxed.

Hanushek *et al.* (2003) compare education subsidies with other redistributive mechanisms: proportional income tax and a wage subsidy for low-wage workers. They note that a wage subsidy is the most efficient, essentially because it is clearly targeted. Nonetheless, education subsidies, even if financed by the wealthy, potentially benefit everyone.

All in all, the theoretical literature seems to indicate that one can hardly expect public education funding to have redistributive merits: this is not its role and such a goal is not necessarily consistent with obtaining an optimal level of education in the economy. It has to be admitted, however, that not all studies lend support to this thesis and, more importantly, the analysis of these mechanisms is an extremely delicate matter – so much so that the various models substantively simplify the functioning of the economy by spotlighting specific phenomena, with the result that it is difficult to gain an overall view.^[97]

- *Education: a risky investment*

Another reason for state intervention is the risky nature of educational investment. Young people may, for a few years, forego the income from a job they could take up immediately and then end up without a diploma. They could also successfully graduate but remain unemployed or find themselves in a job for which they are overqualified. If this risk is uninsurable, risk-averse agents will pursue their studies for a shorter period than would be optimal both for themselves and society (or compared to a situation where the risk is insurable).

Eaton and Rosen (1980) opened up this line of investigation by showing that taxation on earnings functions like insurance: the gap between low and high wages is effectively reduced, which decreases wage variance, and therefore the extent of the risk.^[98] They show that the tax system *per se* can increase the demand for education. This reasoning can be extended to public education financing (Wigger and van Weizsächer, 2001): covering the costs of education reduces the initial risk and, again, is justified if the absence of insurance markets leads to under-investment in education through a policy of *laissez-faire*.

[97] A vast swathe of the theoretical and empirical economic literature examines the question of vouchers, which are a form of public financing that allows the private education offering and the inter-school competition thus guaranteed to coexist, by subsidising education. We will not review this literature, which moreover is highly complex and gives no very generally applicable results. This is because, while focusing on the distributive effects of different forms of state intervention, it deals exclusively with compulsory schooling and issues of residential stratification, which have a weak link with the question of higher education.

[98] The uncertainty here is different from the uncertainty analysed by Loury (1981) and mentioned above. In Loury's model, the uncertainty relates to children's educational abilities. Here, it relates to a student's success in exams or in the labour market, given his or her abilities.

Occasionally one comes across the idea that, since the financial markets are imperfect, the government should simply substitute for the banks by offering loans itself, without this implying any form of subsidy. This argument does not hold when risk aversion is introduced, as Vickrey (1962) observed very early on in his seminal paper: "*The trouble with student loans in the past has been that students have on the whole been understandably reluctant to saddle themselves with a fixed repayment obligation...*". The author then suggests that students should be offered loans, but on condition that repayment be indexed on their future income streams, which amounts to tying the loan to an insurance mechanism. This idea has been developed and since applied in the form of income-contingent loans (ICLs).

The notion of insurance is central to ICLs – but, as should be underscored from the outset, this insurance has a cost that is borne by public funding, which *per se* implies a form of redistribution. Basically, ICLs are very close to the tax-subsidy system, the major difference being that the same individuals who first receive the subsidy later pay the tax. The traditional tax system has an intergenerational structure: the older generations pay tax in order to finance the education of younger generations, who will in turn pay their tax... By taxing (as loan repayments) those who have succeeded (or, in other words, the wealthy of the future), ICLs operate redistribution more transparently than does an intergenerational system, while simultaneously correcting the imperfections of both the financial and insurance markets.

The main debate on the topic of ICLs centres on default-risk sharing. It should be kept in mind that covering the risk of default amounts to a subsidy, the cost of which must be borne by certain agents. However, these rules are determined less by redistributive goals than by problems typical of insurance mechanisms: how to avoid encouraging risky behaviour and how to avoid attracting risky customers? From this point of view, the loan scheme experiment conducted by Yale University in the 1970s was disastrous (Nerlove, 1975): all beneficiaries in a given year had pooled responsibility for default. In the event of default, the amount to be repaid by the remaining beneficiaries was increased in order to ensure the equilibrium of the scheme (risk-pooling). This rapidly led all the agents to default in turn. Furthermore, this type of scheme very quickly swings towards what is called *adverse selection*: over the following years, the students most likely to repay did not participate in the scheme. Only the most risky customers did so, which meant that the insurance scheme ceased to be financially viable.

More recently tested mechanisms have extended the risk-sharing base for defaults to all taxpayers. This does not eliminate the incentive to default, or the greater interest for risky "categories" to take part in the scheme. Basically, the problems encountered by

private insurers – which explain why the market has not developed spontaneously – are also valid for the public operator. The main lever (and this is the advantage the public insurer has over the private insurer) is the use of the tax system: this more or less guarantees loan repayment when the beneficiaries receive sufficiently high wages, but it in no way alters the fact that the behaviour of insured individuals is more likely to be riskier. It is above all by examining national experiences that the functioning of these schemes can be evaluated.

- *Positive theories*

A traditional field of public finance, termed “political economy”, analyses the political choices resulting from voting systems in which heterogeneous agents make choices as to which situations benefit them most. The choice between a private education system and a tax-funded public system has been analysed from this angle. In general, the literature presents the conditions in which the expected choice is in favour of state intervention. In these models, the source of agent heterogeneity is family income. We have already seen that this does not determine education decisions if financial markets are perfect. These models thus assume implicitly or explicitly that financial markets are imperfect, but they leave the choice of state intervention open.

The article of Glomm and Ravikumar (1992) is a well-known example. The authors consider two regimes: in one, the education system is private and each parent decides what they will spend on their children’s education; in the other, the system is public, financed by a proportional tax, and the quality of the human capital transmitted increases as public expenditure rises. Agents vote for one system or the other. The authors show first of all that the private system generates more growth (except in particular cases), but also more inequalities. They then analyse the outcome of the vote, which is simple: the education expenditure from which each individual benefits in the public system is directly proportional to the average income, given that the tax system itself is also proportional. In these conditions, families that have a less-than-average income will be “winners”. It thus suffices that the median income be below the average income – in other words, that more than half the families have an income lower than the average income – for the public system to be chosen. It should be noted that most observed income distributions have this property.

This result depends on there being a radical choice between a wholly public and a wholly private system. Fernandez and Rogerson (1995) examine a more realistic model in which public financing may only partially cover the cost of education. However, education is an indivisible good: it is necessary to be able to mobilise its whole cost in order to benefit from it. They show that this aspect can lead to an interplay in which the rich have an interest in the existence of a public contribution,

provided that this is low enough for the poor to be unable to afford, out of their own pockets, the balance required to cover the full cost of schooling. The wealthy thus benefit most, because the poor contribute to the tax but are not in a position to gain from it. The authors show that there is then an alliance between the affluent and middle classes, leading to the emergence of a majority in favour of a level of public financing that does not however cover the total cost of education. This result typically brings to mind systems where tuition fees are only partially covered or of scholarship schemes that do not satisfactorily cover the opportunity costs of education.

Another strand of the literature introduces, as do Epple and Romano (1996), more technical considerations, in which the outcome of the vote is less clearly determined. This can lead to other outcomes where, contrary to the preceding model, it is in the interest of the poor and the rich to form an alliance to reject a public system that would be favourable to the middle classes.

To conclude, the theoretical analysis of the reasons for state intervention shows that the absence of financial markets is a central factor, as it shifts market equilibrium away from an optimal situation. This, therefore, provides a paramount justification for state intervention. Yet, no general message seems to emerge as to the exact form this intervention should take or to the way in which different agents should contribute to it, and thus its distributive impact. A recent strand of literature focuses on income-contingent loan schemes that explicitly correct the absence of financial and insurance markets through a mechanism that is more transparent than subsidising the young, while simultaneously taxing their parents.

4.2. The impact of subsidies

The most general form of state intervention is to reduce the student's cost burden, at different levels or in different structures, through two main tools: tuition fees and scholarships/grants.

By underlining the importance of financial considerations in the education decision after completion of compulsory schooling, human capital theory predicts that these tools, which can be interpreted as components of the direct cost of education, necessarily affect higher education enrolment rates. However, the impact of these tools also depends on other choice parameters: the wage return to education and the terms of financing. The theory does not therefore allow us to know whether behaviours are highly sensitive or, on the contrary, minimally sensitive to variations in direct cost.

The questions that interest the public authorities, and likewise higher education institutions, are of a dual nature: how efficient is a subsidy and to what extent does it permit an increase in student numbers? Or again, if an increase in tuition fees is envisaged in order to fund higher education studies, to what extent will this impact on demand? We present a range of studies that estimate sensitivity to these tools by examining various settings in which the direct cost has been modified.

Interventions of this nature also have redistributive effects, to begin with a widespread example: free or almost free education. The dynastic model of Becker and Tomes (1986) recalls, like many others, that family circumstances are important determinants of the demand for education, that the children of educated families reap greater benefits from their studies and that, in the absence of financial markets, the richest families are more able to send their children to university. As a result, non-targeted measures such as heavily subsidised tuition fees are of more benefit to wealthy families. A long-established literature has been endeavouring to assess the redistributive outcomes of such interventions. We will present their principles and limits.

The literature on these questions relies heavily on American data and sometimes on data from other developed countries, but it very seldom documents the state of affairs in developing countries. As it is impossible to generalise the sensitivity observed in a given education system or labour market, the results presented here must be taken as no more than indications for wider applications.

4.2.1. Education demand and its sensitivity to the cost of schooling

The demand for education can be influenced by modifying the price of education in various ways. The different modalities implemented by subsidisation policies are crucial, as they impact on the channels used to transfer these funds and, thus, on the final outcome of the scheme, not only in terms of efficiency but also of targeted beneficiaries: which population group is affected? Do the effects mainly influence the quantity or the quality of education?

Fees or scholarships/grants: these two instruments are very similar and, in fact, scholarships may sometimes take the form of a reduction in tuition fees. However, their effects can theoretically be different because in the case of reduced fees the subsidy is in kind, whereas in the case of scholarships or grants any kind of consumption can be financed. *Individual or collective financing:* a second important aspect of financing policies is their scale of implementation. Depending on whether the subsidies or loans are awarded to individual students or to the university as a whole, the ripple effects or eligibility criteria can be very different. *Direct or indirect financing:* the funds can be transferred to the student directly (or to his or her parents) or to

the university, which then integrates this subsidy into its own resources before redistributing it to the students. *Financing based on merit or on need*: lastly, subsidies can be allocated on various eligibility criteria: the students' academic merit, their financial needs or varying combinations of both.

- *Experiences of different types of financial assistance*

Table 16 summarises a selection of evaluations that we consider to be methodologically sound. They are based on a broad range of experiments and give a relatively good idea of the different types of approach and the results presented in the literature. Some evaluations examine the introduction of grants in the 1990s in California (Kane, 2003), in Georgia and Arkansas (Dynarski, 2005) and on the East Coast of the United States (Van der Klaauw, 2002), while another analyses the closure of a financial aid scheme for young people from difficult family backgrounds (Dynarski, 2003). The question is in fact quite simple: what causal effect does the introduction or withdrawal of scholarships/grants have on university enrolments?

We also present some evaluations involving secondary education, either because they furnish excellent examples, or because they are among the few quality evaluations undertaken in a developed country. Thus, the British system of Education Maintenance Allowance (EMA) pays grant aid to 16-to-18-year-old youth from low-income households who remain in secondary education (Dearden *et al.*, 2005). The Colombian voucher programme examined by Angrist *et al.* (2002 and 2004) partially covers the costs of attending a private school, with voucher renewal being contingent on the students achieving good grades. Lastly, an Israeli experiment evaluated by Angrist and Lavy (2002) introduces financial incentives to succeed in the secondary education certificate.

Other experiments focus on encouraging achievement in higher education. One evaluation examines the different levels of tuition fees paid by students at Bocconi University in Milan on the basis of family income (Garibaldi *et al.*, 2008); another offers direct incentives to succeed in exams (Angrist *et al.*, 2009).

At the methodological level, all these evaluations inevitably come up against the same difficulty: does a comparison of the enrolment rates (for example) of potential students who participate in one scheme rather than another allow the causal effect of a scheme to be evaluated? In general it does not, as the students, whether awarded scholarships or not, are all different or have to take their education decisions at different points in time.

Several approaches are used by the evaluations reported in Table 16. The simplest is the controlled randomized experiment: this consists in designating by lottery the population to whom the financial scheme is proposed. The test and control populations differ only in their degree of exposure to the scheme. It is not always possible or desirable to proceed in this way and other approaches, albeit less robust, can be used. Regression discontinuity design (RDD) is an elegant and often compelling method. It uses the fact that the benefit of a policy depends on a threshold (for example, family income) that is often arbitrary. By comparing individuals on both sides of this threshold, one obtains two very similar groups, only one of which participates in the scheme. Matching involves comparing beneficiaries and non-beneficiaries that have the same characteristics (age, gender, family background, etc.). This method is only reliable if one has at one's disposal a very broad range of characteristics. But even then, there is a risk of confusing the unobserved characteristics with the impact of the policy. Lastly, the difference-in-differences (DID) method involves comparing the evolution over time of two groups initially not subject to the policy, but at a given point in time, one of the groups decides to participate in a scholarship scheme, for example.

Table 16 *An evaluation of different financing policies*

	Scheme evaluated	Mode of funding	Eligibility criteria	Evaluation methods	Results obtained *
Scholarship/Grant Policies					
Kane (2003)	Cal Grant programme in California in 1998 and 1999. Grants of USD 4,609 on average, awarded to 332,322 students (150,413 selected for the study).	<ul style="list-style-type: none"> Given directly to the student. Financed by the California government. Individual. 	Merit-based and need-based	Regression discontinuity design	Impact on university enrolment rate: Increase of 3 to 4 percentage points in university enrolment for eligible students.
Dynarski (2003)	End of the national Social Security Student Benefit Program (United States) in 1982. An average grant of USD 6,700 was given to up to 12 per cent of 18-21 year-olds enrolled in full-time tertiary education.	<ul style="list-style-type: none"> Given directly to the student. Financed by the federal government. Individual. 	Need-based and family situation (be aged 18-22 years and have a deceased, disabled or retired parent).	Difference-in-differences method	Impact on university enrolment rate: the programme resulted in 22 per cent of eligible youth enrolling at university.
Dynarski (2005)	Two financial aid programmes, in Georgia and Arkansas, launched in 1993 (United States).	<ul style="list-style-type: none"> Given directly to the student. Financed by the government of the state concerned. Individual. 	Merit-based.	Randomized experiment	Impact on graduation rates an average increase of 3 percentage points in the group graduation with a first-level degree.
Van der Klaauw (2002)	Financial aid programme in a East Coast university (United States) between 1989 and 1993 (around 4,000 students selected for the study)	<ul style="list-style-type: none"> Given to the student. Federal aid. Individual. 	Merit-based and need-based.	Regression discontinuity design	Impact on enrolment decisions: increased enrolment elasticity estimated at 0.86

	Scheme evaluated	Mode of funding	Eligibility criteria	Evaluation methods	Results obtained *
Secondary Level Incentives					
Angrist <i>et al.</i> (2002, 2004)	PACES voucher programme for secondary education (Colombia). In existence since 1991 and helped 125,000 pupils between 1991 and 1997.	<ul style="list-style-type: none"> Given to the student. Financed by the Colombian government. Individual. 	Merit-based; then random assignment.	Randomized experiment	<p>Influence on academic achievement after three years: better scores and fewer repeat years.</p> <p>Influence on university enrolment rate: no effect.</p> <p>Influence on schooling type: <i>the vouchers increased the likelihood of attending a private school.</i></p> <p>Influence on graduation rates: increased by 15-20 per cent.</p> <p>Influence on grades: higher scores in the university entrance exams.</p>
Dearden <i>et al.</i> (2005)	Education Maintenance Allowance programme in 1999 and 2000 (England): grants for 16-18-year-olds pursuing secondary schooling after completion of compulsory education (around 6,000 students selected for the study)	<ul style="list-style-type: none"> Given to the student or the mother. Financed by the government. Individual. 	Merit-based.	Matching.	<p>Impact on drop-out rates: the allowances resulted in an increase of 4 to 6 percentage points in the school participation rates of 16-18-year-olds, with heterogeneous effects.</p>
Angrist and Lavy (2002)	Cash incentives programme (Israel) for secondary school seniors in the 1999-2000 cohort. Experiment carried out in 40 schools involving 1,302 students.	<ul style="list-style-type: none"> Given to the student. Experimental study. Two systems: individual or school-wide. 	Merit-based.	Matching.	<p>Impact on grades: individual financing programme: no impact; programme targeting entire schools resulted in an increase of 6 to 8 percentage points in the rate of those obtaining the <i>Bagrut</i> (secondary-school certificate).</p>

	Scheme evaluated	Mode of funding	Eligibility criteria	Evaluation methods	Results obtained *
Tertiary Level Incentives					
Garibaldi <i>et al.</i> (2008)	Rules for fixing tuition fees at Bocconi University (Italy) between 1992 and 1999 based on family income (10,216 students).	<ul style="list-style-type: none"> Given to the student. Financed by research body. Collective (a whole cohort of students involved). 	Need-based (ineligible for a grant).	Regression discontinuity design	<p>Impact on time to complete a degree: an increase of USD 1,000 in university fees resulted in a drop of 9.9 percentage points in the number of students repeating the degree programme.</p>
Angrist <i>et al.</i> (2009)	<p>Experiment in a university (United States) in 2005. Three treatment groups:</p> <ul style="list-style-type: none"> "services": students benefit from advisory services and organised study groups "incentives": students receive merit-based scholarships students receive both the above kinds of intervention. 	<ul style="list-style-type: none"> Given to the student Experimental study Individual. 	None, random selection.	Randomized experiment	<p>Impact on attendance : for the students in the third group: an increase in the number of credits signed up.</p> <p>Impact on grades: increase in the grades of 4.2 percentage points for the 3rd treatment group and 2.6 for the "incentives" group. No impact for the "services" group.</p>

In this body of evaluations, forms of aid such as tuition fees and direct achievement incentives generally have effects that are robustly estimated and consistent with theoretical predictions. Most authors observe a price elasticity of demand for education. Financial aid brings about a substantial increase in enrolment rates, with very strong effects in the very disadvantaged populations studied by Dynarski (2003). This means that intervention on the cost of higher education paid by the individual has real effects: without this compensation, increasing tuition fees or reducing scholarships/grants are likely to reduce higher education enrolment rates. By implication (but without being able to quantify this), free or almost free schooling is probably a key determinant in raising educational attainment, especially in the case of low-income households.

This result, which implies a cautionary approach to a system whereby beneficiaries directly finance their education, is difficult to interpret fully: does it reflect a simple reaction to price (or to an incentive), or does it also intervene by reducing the number of agents with liquidity constraints who would be unable to access higher education without this aid? These studies do not allow such a distinction to be made: we will thus ask whether it is possible to measure the empirical importance of liquidity constraints (section 4).

The literature summarised in Table 16 also examines the effects of different schemes, not simply on programme enrolment, but on educational achievement. Here again, the effect of incentives is clear, for both secondary and higher education, but the studies sometimes reveal a degree of heterogeneity. For example, the programme of financial incentives analysed by Angrist *et al.* (2009) is above all effective for women.

- *Equilibrium effects*

The above evaluations show that agents respond differently to modifications in schooling costs. Their analysis is based on *ad hoc* modifications to financial assistance or tuition fees. But if the challenge is, for example, to bring in a policy supporting a substantive and widely applicable reduction of tuition fees in order to increase higher education enrolment rates, some authors warn that small-scale experiments can be misleading.

Another argument in this vein is presented by Heckman *et al.* (1998), who examine the impact that tuition policies can have on labour markets. In the short run, a drop in the price of tuition increases enrolment in higher education. However, this policy intervention subsequently leads to higher numbers of higher education graduates in the labour market. This phenomenon is not visible when changes to subsidy policies that affect only a limited number of individuals are examined, but it is relevant when considering policy on a more extensive scale. It is in this setting that the equilibrium mechanism intervenes: the relative price of highly skilled labour may then decline as it is plentiful on the market, which in turn reduces the financial incentives for individuals to pursue further schooling and, in the end, limits the positive incentive induced by tuition fees.

Orders of magnitude can be important when calibrating a model that captures behaviours relating to schooling demand and labour market adjustments. The authors take as their starting point the type of aid modifications that are typically examined in the literature reviewed earlier and which lead to enrolment increases of around 5 percentage points. This is a partial equilibrium effect, which is to say that it leaves all the other economic parameters unchanged and, notably, the wage differentials between higher education graduates and other individuals. When the authors include the induced impact on the labour market, they estimate that the final rise in the enrolment rate could be no more than about 0.5 percentage point! In other words, the entire effect may be absorbed by the responses of all the economic parameters.

Of course, the exercise undertaken by Heckman *et al.* (1998) is somewhat abstract and underpinned by a very specific model. It does however emphasise one point: “microeconomic” evaluations that describe the responsiveness of individual behaviours do not necessarily suffice to form a judgement about the impact of a tuition or scholarship policy.

4.2.2. *Redistributive aspects of subsidised tuition*

Subsidies for higher education chiefly take the form of subsidised tuition and may be supplemented by more targeted assistance. The expected outcome of such interventions is a rise in higher education enrolment rates. Yet, a further question arises about the income redistribution implicitly generated by these subsidies. At a theoretical level, we have seen that public financing can be linked with various tax mechanisms, either progressive or regressive (section 2). In the public mind, the fact that higher education is virtually free often appears to be a guarantee of equality. The empirical answer to this question is, however, difficult to establish.

- *Methodological difficulties*

It could be considered that, since higher numbers of children from high-income households access higher education, especially the most selective and most expensive programmes, public funding of education constitutes a highly regressive transfer.

Long's (2003) analysis illustrates this point. It shows that tax-credit programmes did not reach sufficient numbers of students from lower-income families, as their tax liability was too low for them to claim the credit for which they were eligible. The evaluation concludes notably that the programme has above all enabled students from middle-income families, who would have gone to university anyway, to widen their choices and attend more expensive universities.

Thus, the principle of the method is simple – all that is required is to observe the rates of access to schooling and their structure: who has access to higher education and to which kind of institution (more expensive, better quality...)? A study using this approach will look at the differences in benefits for each individual but will not capture each household's relative contribution to schooling.

However, a more in-depth analysis very quickly complicates the reasoning, particularly when the effect of scholarships or loans and taxation are taken into account. For taxation, which is most of the time correlated with income, it can be assumed that higher-income households contribute more to financing higher education than lower-income households. This can offset the greater benefit that higher-income households gain from public financing of education. The core question is thus to estimate the balance of transfers according to individual income, a task rendered all the more difficult as it is not easy to calculate what share of a person's taxes is allocated to education.

The overarching problem of this type of approach is that on the whole there is no education tax. So, which share of personal tax (and which taxes) can be attributed to education? In order to determine this, the following question needs to be answered: if individuals had to pay for the full cost of their schooling, what would the progressivity of the tax schedule be?

If the tax structure is explicitly proportional (that is to say that each person pays the same fraction of his or her income), the answer is simple: if education represents 10 per cent of government expenditure, then each person contributes 10 per cent from his or her tax. This is to be understood in the sense that, if public financing of education ceased, the tax paid by each person could be reduced by 10 per cent. But when the tax structure is progressive, there would be many ways in which the tax schedule could be modified: by proportionally reducing the rates for all tax brackets, by reducing in priority the rates for the highest brackets, etc.

An even more comprehensive approach, but one that cannot be based on accounting methods, would compare the relative benefits of a public and private system for each type of agent, taking into account the fact that education investment decisions would be of a different nature in the two regimes. This would be a conceptually well-defined exercise, but based on specific and probably very strong modelling assumptions.

4.3. Are there credit constraints?

The studies presented and discussed in the previous section have highlighted the positive role that a decrease in the price of education plays in young people's participation in higher education. Egalitarian goals may be mobilised to justify tuition subsidisation policies (whether these concern universities or directly students), but we have seen that there is strong uncertainty as to the redistributive effect of public financing of higher education.

State intervention is mainly justified by the existence of imperfections in the financial market. We examine here the empirical literature that attempts to establish whether or not in some economies there are credit constraints that limit access to education.

This is a difficult question. From an empirical stance, economists observe a stable and positive relationship between household income and the demand for education. This linkage however does not mean that wealth *per se* is the cause of longer periods of schooling. In fact, the effects of wealth may be confounded with imperfectly observable characteristics, such as children's "taste" for education, the cultural environ-

ment, etc. Even if there were evidence for a causal relationship, this would not necessarily imply the existence of credit constraints. If education is not only an investment good but also much appreciated for itself, the wealthiest individuals can afford to “consume more” of it.

In most cases, the conditions governing access to the credit market are not observed directly. This means that empirical studies tend to use indirect strategies, which are more or less transparent and more or less sensitive to particular modelling assumptions. On the whole, the literature remains largely incomplete, as most of the research carried out concerns developed countries, where market imperfections are as a rule less pronounced and where intervention mechanisms that ease credit constraint effects are already structurally integrated. The subject has been much less explored in the developing countries, where it could nonetheless be expected to have greater impact.

- *Income and education demand*

The foremost difficulty encountered when attempting to identify the causal effect of income on the demand for schooling is a problem of endogeneity. Family resources are potentially correlated with a certain number of (unobserved) characteristics that play a separate role in education decisions.

In order to estimate the causal effect of family income on education decisions, Acemoglu and Pischke (2001) exploit the fact that in the United States low and high incomes evolved differently between the 1970s and the 1990s: the poorest families became even poorer while the richest families became still wealthier. The authors assume that the unobservable family characteristics that affect families' education choices are present in the same way over time in each income quartile. They then compare the relative college enrolment rates of children from wealthy and poor backgrounds over time, under the assumption that the main determinant of how this ratio evolves is the increase in income disparity and not differences in family backgrounds, which are assumed to be constant. A 10 per cent increase in income is associated with a rise of 1.4 percentage points in the probability of attending a four-year college programme. According to their estimates, two-thirds of the gap between the enrolment rate of the poorest families and that of the richest can be explained by income disparities.

When the income effect is allowed to vary by quartile, the coefficients show that income only affects the education decisions of higher-income families. The authors interpret this result as indicating that even wealthier families are affected by credit constraints. The study of Acemoglu and Pischke concludes therefore that there is a

large income elasticity of the education demand. If one admits that overall consumption considerations intervene to some degree, then the sensitivity of education to income is not sufficient to demonstrate the existence of credit constraints. Banerjee (2004) develops this argument and warns against using the predictions of the model to test for the existence of credit constraints.

Cameron and Heckman (2001) revisit with greater nuance the standard intuitive model, according to which income should have no effect on education in the absence of credit constraints. They adopt a life-cycle view in which individual income is divided into permanent income^[99] and momentary income.^[100] They interpret permanent income as being an indicator of the cognitive and social environment of a child, while momentary income is more clearly linked to being constrained, or not, on the credit market.

The authors observe how the effect of short-term income on the indicators of educational decisions evolves, according to whether or not this is conditioned on long-term household characteristics such as the parents' educational attainment, the number of siblings, the younger generation's "ability" (crystallised in the scores of the AFQT test),^[101] etc. They then separate the respective roles of ability and credit constraints in the explanation of enrolment rate differentials between minorities (black and Hispanic) and whites in the United States. After estimating a sequential schooling decision model, they conclude that when the ability test score is taken into account, an increase in income (of USD 10,000) has no effect on the probability of attending a university, but it does increase by 1 per cent the probability of attending a higher quality university (four-year college) for Americans who declare themselves as "white". Carneiro and Heckman (2002) apply the same strategy to explain the differential enrolment rates between white Americans according to their income quartile. Their results indicate once again that, after controlling for ability test scores, the income effect on the difference in enrolment rates is no longer significant. Finally, the authors estimate that only 8 per cent of the population can be considered as credit-constrained. These results however are sensitive to the real possibility of capturing and measuring ability and family background.

• *Credit constraints in the United States*

As it is difficult to interpret the income-schooling relationship strictly in terms of credit constraint, some studies are based on very precise specifications, known as "structural" models. These methods are somewhat indirect and not always very transparent. We have identified three of them.

[99] Disposable household income in the first years of the child's schooling.

[100] Disposable income at the time of each education decision.

[101] Army Force Qualification Test.

Keane and Wolpin (2001) estimate a very detailed education decision model, which takes into account the fact that household income may be correlated with children's "ability" as well as their "taste" for education. Parents make transfers to their children according to their wealth, and the effect of income on education decisions can operate through several channels, including the easing of credit constraints. This borrowing constraint is not represented by higher or lower interest rates, but by a cap on the amount that can be borrowed in order to finance schooling. One of the particular interests of this approach is that it very clearly identifies the effect of parent's transfers to their offspring and the effect of credit constraints. The empirical estimation of each of these effects can only be computed using strong assumptions and extremely complex methods, which detracts from the clarity of their study. The estimations use the American NLSY79^[102] data and the authors arrive at the conclusion that relaxing borrowing constraints would only very marginally modify decisions to enrol in higher education.

Cameron and Taber (2004) develop a rather different approach. They exploit the distinction between the direct costs of schooling (such as tuition fees) and opportunity costs (the earnings foregone during the years of schooling). They note that these two types of costs should affect individuals differently depending on whether they are credit-constrained or unconstrained. Direct costs need to be financed at the time of the education decision and constitute a greater hurdle for credit-constrained individuals. On the other hand, opportunity costs, as such, do not require financing and therefore affect constrained and unconstrained individuals in the same way. The methodology used is relatively complex, but it is based on two simple measures of direct and indirect costs: the presence of a university in an individual's county of residence is used to represent the direct costs, whereas the wages of low-skilled workers in the local labour market are taken as a proxy for the opportunity cost. The test produces no evidence for the existence of credit constraints in the United States. However it needs to be emphasised that the whole distinction between the impact of direct and indirect costs is linked to highly specific and probably questionable modelling choices. In addition, the authors also use estimations of the wage returns of different populations. Carneiro and Heckman (2002), however, show that the prediction that the returns to education of constrained persons should be higher than those of the population as a whole does not hold true very generally.

[102] The National Longitudinal Survey of Youth makes it possible to follow over a long period (10-15 years) a cohort of students who were aged between 12 and 16 at the time of their first interview. The survey collects information about the young people's school and employment paths (see <http://www.bls.gov/nls/> for more details).

Lastly, Brown *et al.* (2009) propose another test for the existence of credit constraints in the same vein as the above studies. Starting from an intergenerational human capital model, the authors show that one can test for credit constraints by comparing the effect of financial aid on the students' educational attainment depending on whether or not they receive post-schooling cash gifts from their parents. The authors have no information on the amount of public financial aid received by the students. However, a specific feature of the United States education aid system (where aid depends on the number of children a parent has in college) allows them to use a measure of the number of siblings whose college years overlap with the student as a proxy for the financial aid received. They then estimate the effects of financial aid by splitting the sample in two, according to whether the parents make a gift to their child or not. In order to avoid confounding the financial aid effect and the role of unobserved family characteristics, the authors estimate the financial aid effect on the educational attainment of the different children within the same family. When the set of families that do not make a transfer is used, the results indicate that the children receiving more financial aid due to their sibling ranking pursue their schooling longer than their brothers and sisters whose birth-dates are spaced further apart. This is not the case when the same method is applied to the other sample – which would suggest that credit constraints do in fact play a role.

At this point, it seems worthwhile to mention a type of analysis that could be given some degree of credibility at the outset. Stinebrickner and Stinebrickner (2008) exploit a panel study in which students were asked whether they would borrow money for their studies if given the opportunity and, if so, how much. The authors then claim that this question allows them to reliably identify credit-constrained individuals. However, responses to this kind of question should be treated with caution, as they furnish a subjective view of the students' situation and are likely to reflect many parameters other than the students' real situation on the credit market. Some studies reveal that American households very severely underestimate their level of indebtedness. As a result, we would consider that this approach is not compelling.

- *Changing contexts*

A conservative reading of the studies mentioned implies that it is difficult to demonstrate the link between underinvestment in education and difficulties in accessing credit. It should be remembered, however, that in the American setting there is a substantial supply of subsidies potentially able to correct the financial market imperfections that would have had significant effects had these policies not existed. In a given setting of the American public system, credit constraint effects may have been largely neutralised. This does not imply that existing interventions are not justified by existing imperfections. It is thus possible simply to assume that education loan schemes will

have very little effect in countries where education policies already abound, but that they offer an interesting opportunity for countries that are in the process of building up their education system. In this overall perspective, two approaches are of interest: one involves studying the different settings of the American context; the other would be to attempt to identify the credit constraints in developing countries.

The study of Belley and Lochner (2007) confirms that the findings of previous studies on credit constraint effects are strongly linked to the situation of higher education and the education policies in place during the period under study. The authors compare the effect of family income on education decisions depending on the time period under consideration. Between the two NLSY surveys (1979 and 1997), the return to higher education had significantly increased, whereas the real value of subsidies had halved. When using the NLSY79, the authors obtain identical results to those of Carneiro and Heckman: income has no determining role in education decisions. On the other hand, with the NLSY97 sample, the income effect increases considerably and becomes statistically significant, even when conditioned on the long-term family characteristics mentioned earlier. Moreover, income also has a determining effect on the choice of institution quality (2-year college against 4-year college) and on the hours worked during the academic year. These elements thus appear to indicate that credit constraints can play a role in education decisions and highlight the importance of context.

Thus, the legitimacy of educational loan programmes is particularly precarious in the setting of industrialised countries where education is already largely subsidised and the credit market very mature. It seems, however, that whenever the intensity of aid programmes eases off, credit constraints may reappear and have undesirable effects in terms of equality of opportunity. The impact of credit constraints on education choices should therefore be all the stronger in developing countries since there are fewer subsidies for education.

In line with the aforementioned literature, Attanasio and Kaufmann (2009) test for credit constraints in education within the Mexican context. They work with data on the education returns that individuals expect to receive and show that, on average, these expected returns do play an important role in schooling decisions. Nevertheless, it is predicted that they will not intervene in the education decisions of credit-constrained households: by definition constrained households are unable to attain the level of education they desire. The authors therefore test for interactions between the expected returns and the variables that capture the probability of experiencing credit constraints. It thus appears that for low-income individuals, expected returns no longer affect education decisions, which the authors interpret as evidence of important credit constraint effects.

In his study, Jacoby (1994) uses the age differences of children in the same household to measure the effect of credit constraints in Peru. Although his analysis focuses on the duration of primary school attendance, we consider the study interesting as it underscores the role of opportunity cost. In fact, primary school is free in Peru: the only cost facing parents is the loss of earnings that comes about while the child is in school instead of working. Jacoby's approach is based on the idea that the degree of financial pressure on a family depends on the spacing of siblings. When two children are born only a few years apart, the household must do without the income from the children's work over the same period, whereas if children are spaced further apart, the financial pressure will be spread out over time. The author splits his sample between potentially constrained and unconstrained households on the basis of their respective levels of debt. The findings indicate that child spacing does in fact have a positive effect on the length of studies for potentially constrained individuals. The author therefore concludes that credit constraints have an impact on education decisions. It appears that the opportunity cost *per se* can have differing effects on constrained and unconstrained individuals, which calls into question the hypotheses of Cameron and Taber (2004). The article is also of interest because it raises the question of credit constraint effects in developing countries even at pre-university level. Focusing on the existence of credit constraints simply with respect to university access may mean that the extent of the phenomenon is underestimated.

To conclude, we should mention the analysis of Cantom and Blom (2004), which, to our knowledge, is the only study that directly addresses the effect of a student loan programme by exploiting data on loan recipients. The authors analyse the effects of the size of credit assigned to Mexican students on their academic achievement at university. Although their study does not test for the existence of credit constraints as such, it is worth mentioning because of the interesting methodology proposed, and also because it broadens the field of vision on the role of student loans. Since the authors make use of data on the loan recipients and as the loans were assigned on predefined criteria, they can compare the students whose incomes lie on either side of the threshold determining the amount they are eligible for. Given that a student's position on one side or the other of this threshold is not linked to his or her educational characteristics, it is thus possible to isolate the causal effect of the amount received on the basis of academic achievement. The authors show that the loans have a positive effect on academic success. A totally comparable approach has been used to study the role of credit constraints in access to higher education in South Africa, which also concludes that there is a severe constraint for South African students from all social classes, apart from the most disadvantaged (Gurgand *et al.*, 2010).

The study of Cantom and Blom (2004) also raises the question of what effect the credit size has on education decisions. To what extent will obtaining a higher amount enable students to concentrate on their studies and achieve better academic results, compared to a situation where only their tuition is financed? Do excessively high amounts represent an excessively strong pressure on students and lead to an increasing probability of default? These questions are fundamental for the design of a student loan policy.

To summarise, the literature addressing the effect of credit constraints on education decisions does not produce any conclusive findings. The question of the existence and the extent of the role of credit constraints in education decisions thus remains unanswered. More precisely, it should be underlined that the majority of authors do not so much query the existence of credit market imperfections, as the extent of their effect on education choices. It is thus possible to conclude that education loan schemes would have little effect in countries where there are already myriad educational policies, but that they do offer an interesting opportunity for countries whose education system is under construction.

4.4. Income-contingent loan schemes

As we have seen, state intervention in education financing can also be justified by the existence of insurance market imperfections. In fact, since investing in education carries elements of risk, individuals can decide not to pursue their studies further if this risk is not adequately insured. For this reason, it is interesting to link loans, which ease credit constraints, to an insurance mechanism: this is the purpose of ICLs, which are loan schemes where repayment is contingent on the beneficiaries' future income at each stage of their life.

The risk intervenes at two levels: it is a constraint on agents, and efforts are made to reduce it; and it affects the probability that loans will be repaid and is detrimental to the stability and sustainability of the loan scheme itself. Statistical analyses clearly indicate that a substantial proportion of students who borrow in order to continue their studies will default, either totally or partially. Schwartz and Finnie (2002) and Dynarski (1994) show that the poorest students (American and Canadian) from less educated backgrounds are more likely to default. It also appears that the return to education at the local level positively influences the probability of repayment.

Since it is not possible to simply do away with the risk of default, setting up these loans schemes inevitably has a cost, which needs to be borne by the collectivity as a form of subsidy. So the challenge facing any institution offering education loans is to

identify the mechanisms likely to reduce the proportion of insolvent students, while maintaining accessibility to the loan for the target-group or, in other words, for the most needy students with the highest probability of default.

To reach financial equilibrium, an ICL scheme needs to be able to offset its losses while at the same time limiting moral hazard behaviour because, although ICLs constitute an insurance against default risk for the borrowing student, the sustainability of the scheme also depends on this same risk. We presented earlier the 1970s Yale experiment, which initiated a “risk-pooling” system (section 2) but which failed in the short run. We present here other “risk-sharing” schemes that have now been introduced.

There has been no evaluation, in the strict sense of the term, of experiences with ICLs, so we can only present national experiences in the form of case studies. Although all ICLs are based on the same principle, the schemes are very diverse. First of all, they have different objectives, which in part determine their level of “generosity” and their design. The institutional context in which they have been set up is another important element for their success.

- *The different objectives of ICLs*

The prime objective of an ICL scheme is to guarantee access to higher education for all. Various national experiences show that, in practice, governments combine different objectives.

In countries where tuition fees are high, the use of ICLs responds above all to a political will to guarantee access to education for the least privileged. A striking example of this is South Africa, where tuition fees are high relative to the average income and where a large number of people are likely to be credit-constrained. Since 1991, the government has been operating the National Student Financial Aid Scheme (NSFAS), with the stated objective being primarily to reduce racial inequality in access to university.

In some countries, university is free or virtually free of charge. In this setting, the question of the utility of ICLs is posed differently since access to higher education seems guaranteed. Australia – the first country to adopt an ICL scheme on a national scale in 1989 – was however a case in point. Paradoxically, the adoption of ICLs made it possible to introduce tuition fees at university, while at the same time safeguarding access to higher education for everyone. Two main justifications for this have been put forward: the need to develop the education system in a context where this could not be funded without a contribution from the beneficiaries; and the fact that the user-financed education seemed more equitable compared to a situation

where funds are sourced through taxation. These arguments were also proffered in New Zealand and the United Kingdom when these countries adopted ICLs (Chapman and Greenaway, 2006).

ICLs constitute in effect a means of financing education expenditure by calling on a direct contribution from the user (the student in this case). These objectives are not limited to developed countries. In Ethiopia, students used to not pay tuition fees and were lodged and fed. However, an ICL scheme was set up in 2003 and justified by the inequality created by the free education system.

It is through ICL schemes that most countries also further their goal of subsidising education. These subsidies take different forms. In South Africa, for example, ICLs are reserved for students from disadvantaged backgrounds and a part of the loan granted can be converted into a bursary if the student achieves good results in his or her exams. In New Zealand, the loans are also coupled with scholarships for the poorest students. In general, most ICLs enable the government to continue subsidising education implicitly by fixing loan interest rates at less than market rates.

The justification announced in 1993 by the Clinton administration for the introduction of ICL scheme in the United States was of an original nature: the prime objective is to avoid students having to take on well-paid jobs in order to repay their debts, and therefore shun employment in the public sector. Students are therefore given the option of converting part of their loan into ICLs, thus enabling them to slim down their debts and choose jobs that better suit them.

The different objectives often emerge jointly during the design phase of an ICL scheme, the relative importance of each objective determining more specifically the ICL's level of "generosity".

- *Generosity and ICL scheme design*

When an ICL scheme is mounted, the first step is to set the interest rate(s) for the student loan as well as the income threshold over which students will begin repayment. These two parameters, common to all ICLs, will to a large extent determine to what extent the scheme is financially sustainable or, in other words, what share of the loan the students will actually repay. The second step involves defining the tax schedule applicable to the graduated students and contingent on their income – this amounts to a trade-off between the tax burden that it is desirable to place on graduated students depending on their income level and the speed of repayment.

The different national experiences show the extent to which these parameters play a decisive role in the success or failure of ICLs.

Under the Australian ICL scheme (Higher Education Contribution Scheme: HECS), students pay a contribution, which was AUD 1,800 per course in 1989. Those who participate in the scheme are only required to repay the loan if their annual income exceeds the average earnings of working Australians, which was AUD 22,000 in 1989. Above this threshold, the repayment rate corresponds to 2 per cent of income, rising progressively up to a 6 per cent ceiling contingent on income. In 1997, three changes were made to the HECS: the trigger threshold for repayment is considerably lower; the price of each course is higher; and this price varies according to the field of study.

The Australian experiment effectively shows the extent to which the choice of these parameters is a trade-off between a scheme's financial sustainability and participation in schooling. During the initial phase, the scheme seemed very generous, as the price of courses relative to the income level that triggered repayment was not excessive. Modifying the scheme has resulted in a very sizeable rise in the revenues collected by the government. Symmetrically, the cost burden borne by students has also substantially increased. Yet, this change has not brought in its wake a decline in university enrolments and neither does the socioeconomic distribution of students appear to have changed much. However, the proportion of very poor students has not increased as rapidly as that of middle-income students. Additionally, student numbers have fallen for some courses that have become very high-priced (AUD 5,870 for one year of law studies in 2001).^[103] If the negative effects of the reform have been limited, this is partly because universities have invested their new resources so as to attract students with improved course quality. When the scheme was first set up, it also seems that there was no increase in the proportion of students from poorer backgrounds enrolling in higher education.

As far as financial sustainability is concerned, the Australian experience is a success. The revenues collected through the HECS amount to around AUD 800 million annually, which is equivalent to 20 per cent of the annual recurrent education costs. The 1997 reform reveals an important aspect of an ICL scheme: by keeping the option of modifying the scheme's parameters open, the government can guarantee a certain degree of longevity. This factor is all the more crucial as many loan scheme failures stem from their excessive generosity (Johnstone, 2004). This is the experience of Ghana and Kenya, which allocated sizeable subsidies to their student loan schemes. The interest rates were low, at around 3 per cent and well below the inflation rate, with the result that the schemes were unable to achieve financial autonomy, even in the absence of loan defaults.

[103] In 2001, an Australian dollar was worth on average EUR 0.58. The price of a year of law studies was thus EUR 3,400.

The generosity of a loan scheme can also lead to loan rationing, as is the case in South Africa. A specific feature of the South African scheme is that loans are only awarded to students in financial need. Moreover, 40 per cent of their debt can be written off on condition they achieve pass grades in their courses. This particular feature means that a substantial part of the revenue streams from repayment is lost. Certainly, this specific aspect of the scheme could not have been maintained if the government had extended NSFAS eligibility to all students, without substantially stepping up the state contribution to the scheme. Another eventual consequence of restricting loans to the neediest students is a rise in default rates. A strategy that involves intervening on a wider scale but targeting only one type of student (the neediest and highest ability) may ultimately destabilise the scheme as it selects the riskiest profiles.

In other respects, the NSFAS operates along standard lines: students repay 3 per cent of their income when this exceeds a set threshold, with percentage increments as their income rises, up to a maximum rate of 8 per cent. Chapman (2006) notes that the income threshold above which students begin to repay is very low (USD 5,000 a year, roughly equivalent to the average income). This may reflect the need to set a low income threshold relative to the average income of a higher education graduate, in order to offset the more generous features of the scheme. In fact the NSFAS integrates a heavily subsidised component. Its success must first be measured by the growing number of beneficiaries: starting at 7,500 in 1991, the scheme helped more than 100,000 students in 2001, equivalent to 20 per cent of those enrolled in higher education.

While the degree of generosity of ICLs to a large extent determines their effects, the importance of the actual design of such schemes should not be overlooked.

In this respect, the failure of the ICL programmes initiated by the Clinton administration in 1993 in the United States is particularly striking. This involved offering students the option of converting part of their loan obligations into an ICL, with repayments reaching up to 20 per cent of future income. However, information about the existence of the scheme and its functioning was seemingly not adequately publicised. Two-thirds of the students interviewed said that they were not aware of the scheme and only 14 per cent said they understood how it worked. This experiment shows to what extent a scheme's design, its publicity via communication initiatives, and accessibility of information are crucial to its success.

As for the graduate tax instituted in Ethiopia, flaws in the design of the scheme pertain to the choice of parameters. The scheme involved deducting a tax from graduates'

income over a number of years, this being the simplest way to introduce an income-contingent system of payment. The Ethiopian authorities had chosen a rate of 10 per cent tax rate and planned to exempt 35 per cent of the students, particularly civil service workers (teachers). In addition, if tuition fees were paid “up front”, a 5 per cent discount was given. The World Bank, which provided assistance to the Ethiopian government, identified a certain number of inconsistencies. Considering the low income level of Ethiopian graduates, the tax rate applied seems to be very high. Also, the fact that over a third of graduates was exempted from the tax was prejudicial to the sustainability of the scheme and generated inequalities. The World Bank preferred a version of the scheme with a lower tax rate, which would have made it possible to tax a larger proportion of the students. It also deemed that the 5 per cent discount was not high enough to encourage the up-front payment of tuition fees, insofar as the probability of being able to avoid repayment was high.

- *The role of the institutional context*

Two characteristics appear to be decisive for the success of an ICL scheme: possessing a reliable nationwide identity number for each individual making it possible to track each beneficiary; and having a tax system that permits efficient loan recovery.

The first seems essential from an administrative point of view. In the case of Ethiopia, for example, the social security system had a unique identification code that at the time was used exclusively to pay public sector wages. This system had to be extended to large companies and foreign NGOs, as large numbers of students are employed by public administrations or large foreign companies (and NGOs) after university. As a result, it was possible to keep track of most of the beneficiaries.

The second – a direct tax on wages – is an extremely efficient method of collection. The administrative costs of the Australian and New Zealand ICL schemes thus represent only 2 to 3 per cent of the repayments collected each year. In South Africa, repayments are made directly to the NSFAS, with recovery via the tax system only being used as a last resort. Jackson (2002) finds that annual administrative costs of NSFAS represent less than 2 per cent of the administered funds (ZAR 657 million in 2001), or around 7.5 per cent of the recovered loans. This confirms the intuition that using the tax system is efficient and relatively cost-effective. In a setting where the informal economy is widespread and sources of income are multiple, it would seem virtually impossible to implement an efficient loan recovery system, which will of course exclude the viability of an ICL scheme.

Having universities participate in such schemes can also help to improve operations. This is the case, for example, when the majority of universities are state institutions. This makes running a scheme considerably easier, especially with respect to the

exchange of information and the transfer of funds. Moreover, a nationally scoped, state-funded scheme seems more efficient than one where operations are in the sole hands of private enterprise. This is demonstrated by the Yale Plan in the United States and other experiments in a number of universities in Chile. In both instances, the universities were responsible for loan recovery. However, as they had neither the State's administrative arsenal nor the banks' know-how and capabilities to enforce loan repayment, the universities experienced particularly high default rates. It is only when a university has a very strong social anchorage at national level, as is the case of the *Université Saint-Joseph* in Lebanon, that it is able to obtain high repayment rates.

Generally speaking, the existence of a strong State and an efficient administration, as well as the absence of corrupt practices in public bodies, obviously constitute positive features for the setting up of an ICL scheme. In Ethiopia, the quality of government administration posed no problem, but conflicts between the central and regional authorities led to the adoption of a less ambitious scheme than was originally planned.

Conclusion

The rise in educational levels, and especially in higher education access, is a strong trend in a good number of countries. From the individual's viewpoint, this is justified by the better employment and earnings prospects that prolonging schooling opens up. Many economists consider that this trend is also desirable from a societal viewpoint because it is a precondition for economic growth. Yet, if public authorities wish to support this expansion of education by ensuring a constant quality of educational provision, they need to organise its financing. This means basically deciding who will bear the cost burden – the beneficiaries or the taxpayers, the young or the old, etc.

In most countries, the government contributes substantial funds to finance higher education. We have recalled that the main justification given for this intervention, and one underpinned by economic theory, is credit market imperfection. The human capital theory is an essential step towards this result: it predicts that individuals bear the direct cost and opportunity cost of education, as long as this *investment* is profitable. If students were in a position to borrow the funds needed to finance their schooling, nothing would stand in the way of any educational investment that was profitable for the individual. In this case, the only justification for state intervention would be the gap between the social and private profitability of educational investment (as is the case when education externalities exist).

However, if borrowing possibilities are limited, particularly for poorer families, education levels will probably be low too. Added to this is the fact that access to education is highly unequal. This is what justifies state intervention in the financing of education. What should be noted is the importance of the human capital theory in this reasoning. If education were desired for itself alone, as a consumer good and not for its financial return, access to credit ceases to be a crucial issue. As for the rules governing state intervention, these would be much less clear: the price of schooling can be subsidised in order to increase education levels; but for what reason and to what extent? The arguments advanced would relate to equity, with the argument for efficiency being less easy to define.

The most classical form of intervention is to partly subsidise schooling, through scholarships or reduced tuition fees, and to finance this expenditure through taxation. The literature shows that tax is a relatively efficient lever, since education demand is

sensitive to the direct cost of schooling. This essentially helps to promote access to education for the most financially needy. But taken as a whole, a reduction in the immediate cost of education is a relatively illusory advantage for individuals overall, as this is offset by tax, paid by their parents and also, if equilibrium is maintained, by the individuals themselves at some future time. The efficiency of this kind of measure then raises the question of the relative short-sightedness of the agents, and also the distribution of the benefits and costs between groups and between generations.

On this point, we have seen that although virtually “free” higher education is often considered to be unfair given that it mainly benefits wealthier families, who send their children to university for longer periods of time, evaluating the exact outcome of this is delicate from a methodological point of view. In fact, one needs to know precisely towards whom the additional tax for funding financial aid or a reduction in tuition fees will be channelled. However, the theoretical and empirical literature tends to brush aside the argument of equality or redistribution as the main justification for policies of public financing of higher education, such as they are classically implemented.

It is against this backdrop that researchers and policy-makers have shown an interest in income-contingent loan mechanisms. By taking the form of loans, they alleviate the credit constraint that initially justifies state intervention, while at the same time reinforcing equal opportunities in education (as there is no guarantee of income equality *ex post*). By making loan repayment contingent on income, they provide a form of insurance, the absence of which, in the view of some authors, will discourage the further pursuit of schooling, as this carries a risk (of not graduating or not finding a job). Moreover contracting a loan is a risk *per se* that may be refused, especially by individuals from disadvantaged milieus. Lastly, ICLs constitute a kind of “individualised” approach to financing, as they basically imply that the beneficiaries will bear the cost burden of their tuition, but with repayment being deferred and spread out over time, thus rendering it more acceptable.

Nonetheless, and precisely because they are income-contingent, ICLs also imply the collective cost-sharing of loan-financed education whenever the incomes of loan recipients are incompatible with repayment. As such, they must be understood as a specific tax and transfer system, which is all the more visible as the public authorities usually implement it by relying on the fiscal system. Intuitively, it appears that, compared to classic public financing, the cost burden is borne to a greater extent by the beneficiary (the individual studying), which notably implies less intergenerational solidarity. However, the exact evaluation of these schemes, in terms not only of their incentive effects but also the distribution of costs and returns, still needs more extensive research, not only at a theoretical level but also using tools for empirical evaluation.

References

ACEMOGLU, D. and J.-S. PISCHKE (2001), "Changes in the Wage Structure, Family Income, and Children's Education", *European Economic Review* 45, pp.890-904.

AGENOR, P.-R. and K. EL AYNAOUI (2003), *Politiques du marché du travail et chômage au Maroc : une analyse quantitative*, Working Document No. 3091, World Bank, Washington D.C.

AGHION, P. and P. HOWITT (1998), *Endogenous Growth Theory*, MIT Press, Cambridge, MA.

ANGRIST, J., E. BETTINGER and M. KREMER (2004), "Long-Term Educational Consequences of Secondary School Vouchers: Evidence from Administrative Records in Colombia", *NBER Working Paper No. 10713*, National Bureau of Economic Research, Cambridge, MA.

ANGRIST, J., E. BETTINGER, E. BLOOM, E. KING and M. KREMER (2002), "Vouchers for Private Schooling in Colombia: Evidence from a Randomized Natural Experiment", *The American Economic Review*, Vol. 92, No. 5, pp.1535-1558.

ANGRIST J., V. LANG and P. OREOPOULOS (2009), "Incentives and Services for College Achievement: Evidence from a Randomized Trial", *American Economic Journal: Applied Economics*, Vol. 1, No. 1, pp.136-163.

ANGRIST J. and V. LAVY (2002), "The Effect of High School Matriculation Awards: Evidence from Randomized Trials", *NBER Working Paper No. 9389*, National Bureau of Economic Research, Cambridge, MA.

ATTANASIO, O.P. and K.M. KAUFMANN (2009), "School Choices, Subjective Expectations, and Credit Constraints", *NBER Working Paper No. 15087*, National Bureau of Economic Research, Cambridge, MA.

BANERJEE, A.-V. (2004), "Educational Policy and the Economics of the Family", *Journal of Development Economics*, Vol. 74, Issue 1, pp.3-32.

BECKER, G. S. (1967), *Human Capital and the Personal Distribution of Income: An Analytical Approach (Woytinsky lecture)*, Institute of Public Administration, University of Michigan, Ann Arbor, MI.

BECKER, G.S. and N. TOMES (1979), "An Equilibrium Theory of the Distribution of Income and Intergenerational Mobility", *The Journal of Political Economy*, Vol. 87, No. 6, pp.1153-1189.

BECKER, G.S. and N. TOMES (1986), "Human Capital and the Rise and Fall of Families", *Journal of Labor Economics*, Vol. 4, No. 3, Part 2: "The Family and the Distribution of Economic Rewards", pp.S1-S39.

BELLEY, P. and L. LOCHNER (2007), "The Changing Role of Family Income and Ability in Determining Educational Achievement", *Journal of Human Capital*, Vol. 1, No. 1, pp.37-89.

BLAU, P.M. and O.D. DUNCAN (1967), *The American Occupational Structure*, Wiley, New York.

BOURDIEU, P. and J.-C. PASSERON (1964), *Les Héritiers. Les étudiants et leurs études*, Éditions de Minuit, Paris.

BOURDIEU, P. and J.-C. PASSERON (1970), *La reproduction : éléments pour une théorie du système d'enseignement*, Éditions de Minuit, Paris.

BOWLES, S., H. GINTIS and M. OSBORNE (2001), "The Determinants of Earnings: A Behavioral Approach", *Journal of Economic Literature*, Vol. 39, No. 4, pp.1137-1176.

BROWN, M., J.-K. SCHOLZ and A. SESHADRI (2009), "A New Test of Borrowing Constraints for Education", *NBER Working Paper No. 14879*, National Bureau of Economic Research, Cambridge, MA.

CAMERON, S.-V. and J.-J. HECKMAN (1998), "Life Cycle Schooling and Dynamic Selection Bias: Models and Evidence for Five Cohorts of American Males", *The Journal of Political Economy*, Vol. 106, No. 2, pp.262-333.

CAMERON, S.-V. and J.-J. HECKMAN (2001), "The Dynamics of Educational Attainment for Black, Hispanic, and White Males", *The Journal of Political Economy*, Vol. 109, No. 3, pp.455-499.

CAMERON, S.-V. and C. TABER (2004), "Estimation of Educational Borrowing Constraints Using Returns to Schooling", *Journal of Political Economy*, Vol. 112, No. 1, pp.132-182.

CANTOM, E. and A. BLOM (2004), "Do student loans improve accessibility to higher education and student performance", *CPB Discussion Paper No. 33*, CPB Netherlands Bureau for Economic Policy Analysis, The Hague.

CARNEIRO, P. and J.-J. HECKMAN (2002), "The Evidence on Credit Constraints in Post-Secondary Schooling", *The Economic Journal*, Vol. 112, No. 482, pp.705-734.

CHAPMAN, B. (2006), "Income Contingent Loans for Higher Education: International Reforms", in HANUSHEK, E.-A. and F. WELCH (eds.), *Handbook of the Economics of Education*, Vol. 2, Chapter 25, North-Holland, Amsterdam and Oxford.

CHAPMAN B. and D. GREENAWAY (2006), "Learning to Live with Loans? International Policy Transfer and the Funding of Higher Education", *The World Economy*, pp.1057-1075.

CHAPMAN, B. and C. RYAN (2005), "The Access Implications of Income-Contingent Charges for Higher Education: Lessons from Australia", *Economics of Education Review*, Vol. 24, pp.491-512.

DE FRAJA, G. (2002), "The Design of Optimal Education Policies", *The Review of Economic Studies*, Vol. 69, No. 2, pp.437-466.

DEARDEN, L., C. EMMERSON, C. FRAYNE and C. MEGHIR (2005), "Education Subsidies and School Drop-Out Rates", *IFS Working Paper 05/11*, Institute for Fiscal Studies, London.

DYNARSKI, M. (1994), "Who Defaults on Student Loans? Findings from the National Postsecondary Student Aid Study", *Economics of Education Review*, Vol. 13, No. 1, pp.55-68.

DYNARSKI, S.-M. (2003), "Does Aid Matter? Measuring the Effect of Student Aid on College Attendance and Completion", *The American Economic Review*, Vol. 93, No. 1, pp.279-288.

DYNARSKI, S.-M. (2005), "Finishing College: The Role of State Policy in Degree Attainment", mimeo, Harvard University, Kennedy School of Government and National Bureau of Economic Research.

EATON, J. and H.-S. ROSEN (1980), "Taxation, Human Capital, and Uncertainty", *The American Economic Review*, Vol. 70, No. 4, pp.705-715.

EPPLE, D. and R. ROMANO (1996), "Ends against the Middle: Determining Public Service Provision when there are Private Alternatives", *Journal of Public Economics*, Vol. 62, pp.297-325.

FENDER, J. and P. WANG (2003), "Educational Policy in a Credit Constrained Economy with Skill Heterogeneity", *International Economic Review*, Vol. 44, No. 3, pp.939-964.

FERNANDEZ, R. and R. ROGERSON (1995), "Education Finance Reform and Investment in Human Capital: Lessons from California", *NBER Working Papers*, No. 5369, National Bureau of Economic Research.

FRIEDMAN, M. (1955), "The Role of Government in Education", in FRIEDMAN, M. (ed.), *Capitalism and Freedom*, Chicago University Press, Chicago, IL.

GALOR, O. and J. ZEIRA (1993), "Income Distribution and Macroeconomics", *The Review of Economic Studies*, Vol. 60, No. 1, pp.35-52.

GARIBALDI, P., P. GIAVAZZI and A. ICHINO (2008), "College Cost and Time to Complete a Degree: Evidence from Tuition Discontinuities", *NBER Working Paper No. 12863*, National Bureau of Economic Research, Cambridge, MA.

GARRATT, R. and J. MARSHALL (1994), "Public Finance of Private Goods: the Case of College Education", *Journal of Political Economy*, Vol. 102, pp.566-582.

GLEWWE, P. (2006), "Schools, Teachers, and Education Outcomes in Developing Countries", in HANUSHEK, E.-A. and F. WELCH (eds.), *Handbook of the Economics of Education*, North-Holland, Amsterdam and Oxford.

GLOMM, G. and B. RAVIKUMAR (1992), "Public versus Private Investment in Human Capital: Endogenous Growth and Income Inequality", *Journal of Political Economy*, Vol. 100, pp.818-834.

GURGAND, M. (1998), "Public Finance of Private Goods: A Discussion and Extension", *Journal of Political Economy*, Vol. 106, No. 1, pp.226-231.

GURGAND, M. (2005), *Économie de l'éducation*, Repères collection, Éditions La Découverte, Paris.

GURGAND, M., A. LORENCEAU and T. MELONIO (2010), "(Edu)Loans for students: Credit constraint in South Africa", *AFD-PSE Working paper*, Agence Française de Développement - Paris School of Economics (to be published), Paris.

HANSEN, W.-L. and B.-A. WEISBROD (1969), "The Distribution of Costs and Direct Benefits of Public Higher Education: The Case of California", *The Journal of Human Resources*, Vol. 4, No. 2, pp.176-191.

HANUSHEK, E.-A. and D.-D. KIMKO (2000), "Schooling, Labor-Force Quality, and the Growth of Nations", *The American Economic Review*, Vol. 90, No. 5 (December), pp.1184-1208.

HANUSHEK, E.-A. and L. WOESSMANN (2008), "The Role of Cognitive Skills in Economic Development", *Journal of Economic Literature*, Vol. 46, No. 3, pp.607-668.

HANUSHEK, E.-A., C. KA YUI LEUNG and K. YILMAZ (2003), "Redistribution through education and other transfer mechanisms", *Journal of Monetary Economics*, Vol. 50, pp.1719-1750.

HARE, P.-G. and D.-T. ULPH (1979), "On Education and Distribution", *The Journal of Political Economy*, Vol. 87, No. 5, Part 2: "Education and Income Distribution", pp.S193-S212.

HECKMAN, J.-J., L. LOCHNER and C. TABER (1998), "General-Equilibrium Treatment Effects: A Study of Tuition Policy", *The American Economic Review*, Vol. 88, No. 2, pp.381-386.

HECKMAN, J.-J., L. LOCHNER and P.-E. TODD. (2007), "Earnings Functions, Rates of Return and Treatment Effects: The Mincer Equation and Beyond", in HANUSHEK, E.-A. and F. WELCH (eds.), *Handbook of the Economics of Education*, North-Holland, Amsterdam and Oxford.

JACKSON, R. (2002), "The National Student Financial Aid Scheme of South Africa (NSFAS): How and Why it Works", *The Welsh Journal of Education*, Vol. 11 (1), pp.82-94.

JACOBY, H.-G. (1994), "Borrowing Constraints and Progress through School: Evidence from Peru", *The Review of Economics and Statistics*, Vol. 76, No. 1, pp.151-160.

JOHNSON, G. (1984), "Subsidies for higher education", *Journal of Labor Economics*, Vol. 2, pp.303-318.

JOHNSTONE, D.-B. (1998), "The Financing and Management of Higher Education: A Status Report on Worldwide Reforms", mimeo, UNESCO World Conference on Higher Education, 5-9 October, Paris.

JOHNSTONE, D.-B. (2004), "Higher Education Finance and Accessibility: Tuition Fees and Student Loans in Sub-Saharan Africa", *JHEA/RESA*, Vol. 2, No. 2, pp.11-36.

KANE, T.-J. (2003), "A Quasi-Experimental Estimate of the Impact of Financial Aid on College-Going", *NBER Working Paper No. 9703*, National Bureau of Economic Research, Cambridge, MA.

KEANE, P.-K. and K.-I. WOLPIN (2001), "The Effect of Parental Transfers and Borrowing Constraints on Educational Attainment", *International Economic Review*, Vol. 42, No. 4, pp.1051-1103.

LAUTREY, J. and M. REUCLIN (1980), *Classe sociale, milieu familial, intelligence*, PUF, Paris.

LEVHARI, D. and Y. WEISS (1974), "The Effect of Risk on the Investment in Human Capital", *The American Economic Review*, Vol. 64, No. 6, pp.950-963.

LONG, B.-T. (2003), "The Impact of Federal Tax Credits for Higher Education Expenses", *NBER Working Paper No. 9553*, National Bureau of Economic Research, Cambridge, MA.

LOURY, G.-C. (1981), "Intergenerational Transfers and the Distribution of Earnings", *Econometrica*, Vol. 49, No. 4, pp.843-867.

MURRAY, S.-E., W.-N. EVANS and R.-M. SCHWAB (1998), "Education-Finance Reform and the Distribution of Education Resources", *The American Economic Review*, Vol. 88, No. 4, pp.789-812.

NERLOVE, M. (1975), "Some Problems in the Use of Income-contingent Loans for the Finance of Higher Education", *The Journal of Political Economy*, Vol. 83, No. 1, pp.157-184.

OECD (2005), *Regards sur l'éducation*, Organisation for Economic Co-operation and Development, Paris.

PECHMAN, J.-A. (1970), "The Distributional Effects of Public Higher Education in California: A Review Article", *The Journal of Human Resources*, Vol. 5, No. 3, pp.361-370.

ROMER, P. (1986), "Increasing Returns and Long-Run Growth", *Journal of Political Economy*, Vol. 94, pp.1002-1037.

SCHULTZ, T.-W. (1960), "Capital Formation by Education", *The Journal of Political Economy*, Vol. 68, No. 6, pp.571-583.

SCHWARTZ, R. and S. FINNIE (2002), "Student Loans in Canada: an Analysis of Borrowing and Repayment", *Economics of Education Review*, Vol. 21, pp.497-512.

SHAFFER, H.-G. (1961), "Investment in Human Capital: Comment", *The American Economic Review*, Vol. 51, No. 5, pp.1026-1035.

STINEBRICKNER, R. and T. STINEBRICKNER (2008), "The Effect of Credit Constraints on the College Drop-Out Decision: A Direct Approach Using a New Panel Study", *The American Economic Review*, Vol. 98, No. 5, pp.2163-2184.

TIERNEY, M.-L. (1980), "The Impact of Financial Aid on Student Demand for Public/Private Higher Education", *The Journal of Higher Education*, Vol. 51, No. 5, pp.527-545.

VAN DER KLAAUW, W. (2002), "Estimating the Effect of Financial Aid Offers on College Enrollment: A Regression-Discontinuity Approach", *International Economic Review*, Vol. 43, No. 4, pp.1249-1287.

VAN DER KLAAUW, W. (2008), "Breaking the link between poverty and low student achievement: An evaluation of Title I", *Journal of Econometrics*, Vol. 142, pp.731-756.

VICKREY, W. (1962), "A proposal for student loans", in Mushkin, S.-J. (dir. pub.), *Economics of Higher Education*, United States Department of Health, Education and Welfare, Government Printing Office, Washington, DC.

WIGGER, B.-U. and K.-W. VAN WEIZSÄCKER (2001), "Risk, Resources, and Education: Public Versus Private Financing of Higher Education", *IMF Staff Papers*, Vol. 48, No. 3, International Monetary Fund, Washington, DC.

WILLIS, R.-J. (1986), "Wage Determinants: A Survey and Reinterpretation of Human Capital Earnings Functions" in Ashenfelter, O. and R. Layard (dir. pub.), *Handbook of Labor Economics*, Vol. I, Elsevier/North-Holland, Amsterdam and Oxford.

WOODHALL, M. (1988), "Designing a Student Loan Programme for a Developing Country: the Relevant International Experience", *Economics of Education Review*, Vol. 7, No. 1, pp.153-161.

WORLD BANK (2008), *The Road not Traveled: Education Reform in the MENA*, World Bank, Washington, D.C.

WORLD BANK (2008), *World Development Indicators*, World Bank, Washington, D.C.

List of Acronyms and Abbreviations

ACS	<i>Administration centrale des statistiques</i>
AFQT	Army Force Qualification Test
AUC	American University in Cairo
BAU	Beirut Arab University
BIAT	<i>Banque internationale arabe de Tunisie</i>
BT	<i>Banque de Tunisie</i>
CAPMAS	Central Agency for Public Mobilisation and Statistics
DC	Developing Countries
EAP	East Asia and the Pacific
ECTS	European Credits Transfer System
EGP	Egyptian Pound
EIB	European Investment Bank
EMA	Education Maintenance Allowance
EU	European Union
FEMIP	Facility for Euro-Mediterranean Investment and Partnership
GDP	Gross Domestic Product
HDI	Human Development Index
HE	Higher Education
HECS	Higher Education Contribution Scheme
ICL	Income-Contingent Loans

ICT	Information and Communication Technologies
IEA	International Association for the Evaluation of Educational Achievement
IEAP	International Assessment of Educational Progress
ILO	International Labour Organisation
IMF	International Monetary Fund
INS	<i>Institut national de la statistique</i>
IPEST	<i>Institut préparatoire aux études scientifiques et techniques</i>
IREDU	<i>Institut de recherche sur l'éducation</i> (University of Bourgogne)
ISAT	International Student Achievement Tests
ITD	<i>Institut Tunis-Dauphine</i>
IUT	<i>Institut universitaire de technologie</i>
KEI	Knowledge Economy Index
LAC	Latin America and the Caribbean
LDC	Least Developed Countries
LEA	<i>Langues étrangères appliquées</i> (Applied Foreign Languages)
LMD	Licence-Master-Doctorate
MBA	Master of Business Administration
MENA	Middle East and North Africa
MHESRT	Ministry of Higher Education, Scientific Research and Technology
MoHE	Ministry of Higher Education
MSB	Mediterranean School of Business
NGO	Non-Governmental Organisation
NIF	Neighbourhood Investment Facility
NLSY	National Longitudinal Survey of Youth
NPV	Net Present Value

NSFAS	National Student Financial Aid Scheme
OECD	Organisation for Economic Cooperation and Development
OURSE	<i>Observatoire universitaire de la réalité socio-économique</i>
PACES	<i>Programa de Ampliación de Cobertura de la Educación Secundaria</i>
PIRLS	Progress in International Reading Literacy Study
PISA	Programme for International Student Assessment
RDD	Regression Discontinuity Design
SME	Small and Medium-Sized Enterprises
SSA	Sub-Saharan Africa
TFP	Total Factor Productivity
TIMSS	Trends in International Mathematics and Science Study
UBCI	<i>Union bancaire pour le commerce et l'industrie</i>
UFE	<i>Université française d'Égypte</i>
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
USAID	United States Agency for International Development
VAT	Value Added Tax
WEI	World Education Indicators
WEO	World Economic Outlook

What is AFD?

AFD stands for the *Agence Française de Développement*. AFD is a public development finance institution that has worked to fight poverty and support economic growth in developing countries and the French Overseas Communities for almost 70 years. AFD executes the French government's development aid policies.

Through offices in more than fifty countries and nine French Overseas Communities, AFD provides financing and support for projects that improve people's living conditions, promote economic growth and protect the planet: schooling, maternal healthcare, help for farmers and small business, water supply, preservation of tropical forests, and fighting climate change, among other concerns.

In 2009, AFD committed more than €6.2 billion to financing aid activities in developing and emerging countries and the French Overseas Communities. The funds will help vaccinate 1.8 million children, improve drinking water access for 7.3 million people and support 900,000 private sector jobs, while energy efficiency projects save nearly 5 million tons of carbon dioxide emissions per year.

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Financing Higher Education in the Mediterranean Region

The demographic transition in North Africa and the Middle East is gradually shifting pressure onto the education systems and labour markets. Rising unemployment among young graduates means that questions now need to be asked about the economic and institutional determinants of the low level of graduate employability.

Drawing on a survey of the history and failings of the education systems in three of the region's countries (Egypt, Lebanon and Tunisia), this report proposes various lines of reflection concerning support for the private university sector, greater equality of access to higher education and, more broadly, support for public policies in the face of a pressing need for reform.

Two theoretical and empirical contributions complete this strategic and operational thinking. The first, proposed by the Institut de recherche sur l'éducation (Bourdon, Bydanova and Giret), focuses on the economic returns of education laying down the relationship between economic growth and higher education. The second, from the Paris School of Economics (Duchatelle, Gurgand and Lorenceau), addresses the topic of higher education funding mechanisms and the consequences of the different financing choices made in terms of efficiency and equity.

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