



Social and economic sustainability in the development of post-primary education

As a counterpart to the previous chapter, the social and economic sustainability of the expansion of post-primary education is analysed here. An additional effort on public financing would be justified for post-primary education, within the constraints mentioned in chapter 6, in view of the behavioural and the economic benefits that society could gain from it. Regarding behaviour, it is observed that a large share of the changes, associated to the level of schooling, is already accounted for by primary schooling and consolidated with lower secondary completion. The very real social benefits gained from the expansion of post-primary education are nevertheless limited. Economically, the benefits for society are very much dependent upon the labour market situation and on the integration opportunities for education system leavers. In many countries, the significant imbalance already registered, particularly for the most qualified, would justify flow regulation.

The question of the social and economic sustainability of post-primary education is closely linked to the individual and social returns to this type of education. Recognition of primary education as a basic right and of the high social benefits (the economists' *positive externalities*) it generates, guarantees the convergence of individual interests and the interests of society in pursuing Universal Primary Education (UPE). At post-primary level, this convergence is not necessarily evident : the social externalities associated with a higher level of education are largely marginal compared to those already associated with primary enrolment ; as for the economic benefits, they depend crucially upon the integration of school leavers in the job market and therefore upon the adjustment, in quantity and in quality, of the number of those qualifying from the different levels and courses of study to the needs of the economy. Such an adjustment is difficult to achieve: projections in this area are somewhat unreliable and individual behaviour patterns do not systematically guarantee reaching community goals. Finally, the embodiment of human capital, and the high mobility resulting from this, adds yet another risk of imbalance between the two orders of interest, all the more so as one takes into consideration levels of education which are of value (and often of greater value) outside the national market alone.

Supporting the development of post-primary education is not therefore automatic. Before defining the forms and intensity of this support, it is necessary to analyse the expected economic and social returns and to develop a relatively detailed sector-wide strategy focusing on definition of the forms and types of education to be promoted and considerations on content and on modes of regulation. This chapter concentrates on the first point, assembling different pieces of information in order to comprehend the current situation. The question of the short and long-term policies to be implemented and their possible development in the longer term will be handled in the following chapter.

Section 1 is devoted to providing a short theoretical reminder of the determining factors in the demand for education and of their implications in terms of labour market balance and of public funding of the education system. Section 2 gives precisions on the expected social benefits of the development of post-primary education. The following sections handle measurement of the economic benefits. This cannot be established in a simple and definitive way and is rather the result of mobilizing and putting into perspective a whole range of elements, which may converge to outline this necessarily imprecise measure. Section 3 covers, first of all, the present situation in terms of job perspectives and structure of the labour markets and goes on to measure the existing imbalance (job access indicators for education system leavers, job balance). An estimation of growth models (section 4) will complete the analysis of the quantitative balance between supply and demand in qualifications, by enabling a better grasp of the impact of the different levels of post-primary education compared with the national development contexts.



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1. Characteristics of educational investment, its consequences on demand and financing of education

Economic theories on education still provide a useful theoretical framework for discussion regarding the evolution of public education policies today, especially in developing countries where the weight of financial constraints must lead to the greatest possible vigilance as to the management of public activities. Far removed from the traditional conception of an «education market» naturally balancing out after a period of crisis, these theories announce the possibility of lasting imbalance and the development of diploma inflation dynamics, the reality and scale of which are uncontested today in many countries. This situation leads necessarily to thinking of ways of absorbing this imbalance and of the role that public financing of education can play in this respect. The embodiment of education by the person, which is the specific predominant feature of education, makes these considerations even more necessary. Education, once embodied, is fundamentally a private, mobile, inalienable good which only justifies financing as long as it answers the community needs, which are themselves dependent on variable economic circumstances in time and space.

These theories assert that education is an investment that the individual makes in himself/herself by comparing the costs incurred (direct costs, income foregone during the period of study also known as opportunity costs) and the benefits he/she expects to get out of it in the future, generally measured by the additional income associated with the rise in the level of education. The individual decision of investing in education reflects, in this paradigm, the comparison of expected returns to education with those from alternative investments. The private nature of educational investment by no means excludes public funding of a part of the cost since education brings benefits to society, exceeding the simple total sum of individual benefits. The externalities of individual investment in education concern many areas where education contributes to the positive evolution of attitudes that have a strong community value (health, birth control, civic responsibility, etc.). They also concern the capacity of the nation in terms of economic growth.

On the surface, the rationality of individual behaviour and the convergence of individual and community interests seem to guarantee the balance between demand for education and job opportunities. Economic theories on demand for education announce, in fact, that this rationality in individual behaviour can go up against the satisfaction of community goals. Indeed, for the same expected benefits, returns to education can vary significantly since individuals are faced with different costs: financing capacities for the direct costs of education are not equal between rich and poor people, opportunity costs differ between urban and rural areas, between boys and girls, etc. For obvious equity reasons, society may not be satisfied with these situations and may decide to adjust its aid accordingly, in order to partially compensate for a part of the costs at the charge of individuals belonging to the different groups. Public support to groups, whose returns to education are lower than others, may also be justified in terms of social effectiveness if it is proven that the economic growth or social benefits to society increase, when this population has more access to education.

There are other situations in which rationality in attitudes does not guarantee the convergence of individual and community interests. Return to education is a relative measure depending upon both earnings perspectives and also earnings to be foregone during the time of study. In this frame, a deteriorating job situation does not automatically bring about a drop in demand for education, and thus a rapid return to a good balance if this deterioration affects the least qualified as it is often the case. Individual returns to educational investment can even increase and so fuel further studies and an inflation of diplomas that is of little benefit to society. Thus, individual returns to post-primary education can be high, as shown in the literature on private returns to education in Africa (cf. box 7.1), without however increasing social returns¹.

¹ For a more precise definition of the distinction between private and social returns, cf. UNESCO BREDA 2005, p. 47.

Box 7.1: Private returns to education in Africa

According to the theory of human capital, private returns to education correspond to the salary difference generated by an additional endowment in human capital. The estimation of private returns is often based on the Mincer earnings model (1974) even if this model has changed significantly since that time, further to much criticism.

Principal results on private returns to education in Africa

The last assessment made at regional level on private returns to education (Psacharopoulos and Patrinos 2004) shows that these returns are high in Africa (one additional year of schooling corresponds to an increase of 11.7% in salary in Africa, compared to 9.7% elsewhere in the world) and that they are higher at primary education level than at secondary or tertiary education levels (one additional year in primary education enables an increase of 37.6% in salary compared to 24.6% for secondary and 27.8% for tertiary education). The study also highlights the decrease in returns the higher the level of education gets (concave returns) and shows that for a given level of education, returns decrease with the level of development.

However, the methodology followed by Psacharopoulos and Patrinos, and consequently their results, have since been very strongly questioned by different authors (Bennell, 1996a, 1996b; Glewwe, 1996). For example, Schultz (2004) shows that in six sub-Saharan African countries, individual returns are higher at secondary and tertiary levels than at primary level. Kuepie et al. (2006) find that private returns to education are convex in seven West African capitals (Abidjan, Bamako, Cotonou, Dakar, Lomé, Ouagadougou and Niamey), i.e. that the effect of education on wages in the urban labour markets grows along with the rising level of education starting from a specific threshold. Convexity has already been observed in English-speaking African countries, such as Kenya and Tanzania (Söderbom et al. 2006), as well as Ghana (Schultz 2004).

This analysis on the structure of private earnings corresponding to the different levels of education should not systematically serve as a basis for education policies in favour of long studies, insofar as it is limited to the employed working population and does not take into account labour market imbalance, whether to do with unemployment or underemployment of the most qualified individuals observed on this same data. In any case, it does go to prove that there is a strong individual motivation for following a long course of study in such unbalanced situations.

Differentiating returns according to the different sectors of the labour market

Although many studies on private returns in Africa highlight the fact that the existence of segmented labour markets can have major implications on private returns to education, few of them have estimated these returns by differentiating the different segments². Kuepie, Nordman and Roubaud (2006) have estimated the private returns to education in the informal sector for the seven West African capitals already mentioned. It transpires that for five of these cities, the public sector gives the most value to education. The private modern sector follows (with the exception of Niamey and Lomé) and only then the informal sector (except in Ouagadougou where the informal sector is ahead of the private formal sector).

Private returns to education in the agricultural sector

While there is no doubt as to the fact that education leads to improved wages in the modern sector, the effect of education on productivity in the agricultural sector is much more doubtful and is the subject of much debate. The often-mentioned study by Jamison and Lau (1982), which reviews the results of over 35 studies on the measure of returns to education for farm workers in developing countries, shows that education has a positive effect on farm production but that this effect is often hardly significant. This review does not make it possible in particular to say that returns to education are positive in Africa.

This result is confirmed by the Glewwe study (1990), according to which the impact of education in rural areas is rather low in Côte d'Ivoire. The absence of a significant effect from education in the agricultural sector in Africa is often attributed to the low technological level of production or to the absence of technological change. Foster and Rosenzweig (1996) show that technological changes increase returns to education. However, Deaton and Benjamin (1988) find no effect from education in the use of modern techniques in the production of cocoa and coffee in Côte d'Ivoire. Jolliffe (1998) shows a positive effect for cognitive skills on household revenue in Ghana, but this impact is not significant on the income specifically connected to farming activities. More recently, Cogneau et al. (2006) studied agricultural production for Côte d'Ivoire, Ghana, Guinea, Madagascar and Uganda and found that the level of education of the head of the household has an effect on agricultural productivity, only in the cases of Madagascar and Uganda.

Source: DIAL, Paris

2 Cf. Lassibille and Tan (2005) for Rwanda, Casero and Seshan (2006) for Djibouti and Kazianga (2004) for the public and private modern sector in Burkina Faso.

When society covers part of the cost of education (free education, grants partially compensating for opportunity costs, etc.), this also affects returns and therefore behaviour. In many African countries, the growing scarcity of public job opportunities has affected the effectiveness of some courses of study in tertiary education and these have only remained attractive due to the advantage of holding a degree in the queue for job vacancies and even sometimes only due to the advantages of student status itself (which grants the equivalent of a salary, medical coverage, accommodation, transport and meals highly subsidized). The strategy of some students who look for ways to stay in university as long as possible, by totally and judiciously taking advantage of the rules on authorized repetition, highlights the caricature of the possible gulf between individual rationality and the interests of society as a whole.

The embodiment of human capital obviously constitutes another element to be taken into account for public financing of educational investment. One of the consequences of this embodiment is mobility, which is expressed when there are better opportunities outside the national market. The «brain drain» (box 7.2) is the most visible illustration of this but the situation also concerns holders of professional qualifications, particularly scarce in the region due to the low development of technical and vocational education in many African countries.



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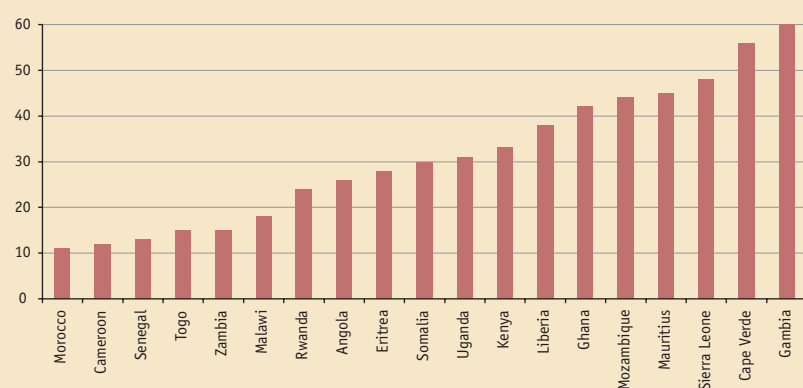
Box 7.2: The brain drain constitutes more of a handicap than an advantage for the development of the poorest African countries

The brain drain, or exodus of skills or of skilled workers, has a negative connotation. This is clear through the word “drain”. In addition, many theoretical and empirical studies tend to show that this phenomenon is detrimental to the country of departure of these “brains”. Indeed, when skilled workers leave their country, they are exporting, not only their individual productivity abroad, but also the underlying externalities (know-how that they would have passed on to their fellow countrymen). To these losses, must be added the cost borne by the community for financing their training and the tax loss on their income. For these reasons, the brain drain has a high social cost and generates negative effects on long-term economic growth and on the well-being of the residents of their country of departure (Docquier and Marfouk, 2006, Docquier, 2006).

The migration of skilled workers does not present only negative aspects for the migrants' economy of origin. Four positive effects can be identified (Docquier and Marfouk, 2006, Docquier, 2006, Beine, Docquier and Rapoport, 2006). First of all, migrant workers transfer a substantial share of the income earned abroad to their country of origin. Secondly, for an economy where the research sector is hardly effective, it may be best to let part of the skilled labour force emigrate, if the economy can retrieve some of the technological advances made in the receiving country by an imitation process, by investments or transfer of technology. Thirdly, if skilled migrants return to their country of origin, this constitutes a possible transfer of competence, knowledge and expertise acquired abroad. The authors put forward one last element, specifying that the perspective of qualified migration encourages young people to get training even if there is no guarantee for them to migrate in the future. Clearly, this may be an advantage for the country when the demand is somewhat low in spite of the corresponding job potential, but this may also fuel the inflation of diplomas and imbalance on the local labour market.

However, all in all, a high rate of migration by the highest skilled labour force curbs development in the country of origin (Beine, Docquier and Rapoport, 2006 - the individuals they studied had benefited from at least 13 years education in their country of origin). These authors showed that Africa is the World region with the highest rate of migration towards OECD countries (10.4% on average, distributed as follows: 13.1% in sub-Saharan Africa and 7.3% in North Africa). These rates are estimated at 3.3% in America, 5.5% in Asia, 6.8% in Oceania and 7.0% in Europe. In the specific case of low-income countries, they have, in addition, shown that a rate of migration exceeding 15 or 20% constitutes more of a handicap than an advantage for development. Many African countries are however well over this threshold, as shown in the following graph.

Percentage of highly skilled labour force having emigrated to an OECD country, according to the country of origin, 2000



*Note: The rate of migration is only calculated for individuals at least 22 years old on leaving their country of origin.
Source: Docquier (2006).*

The average rates conceal significant disparities, according to the special fields (computer scientists, doctors, finance managers, university professors, head managers, etc.). For example, the migration of doctors is more pronounced in some countries, particularly in Cape Verde, Sao Tome and Principe, Liberia, Ethiopia, Somalia, Ghana, Uganda, Malawi, Zimbabwe, Gambia, Zambia, Togo and in South Africa (Docquier et Bhargava, 2006, mentioned by Docquier, 2006).

Sources: Docquier (2006), Docquier and Marfouk (2006), Beine, Docquier and Rapoport (2006)

The different examples clearly show that regulation of the imbalance on the «education market» does not happen automatically and that it may require an adjustment of public funding. This is the case when promoting equity between the different groups by compensating for the differences in opportunity costs or in case of direct financing of studies which are an obstacle to universal enrolment; this is also the case when the labour market situation (greater deterioration for lower levels of skills) or the existence of a strong descriptive component in educational investment³ fuel the inflation of diplomas, which is detrimental to society. The mobility of human capital also means that there is a risk of financing the training of professionals and executives to the advantage of other countries.

These general considerations on the financing of educational investment must be qualified with regard to the level and the type of education. The consensus on the public funding of primary education and the promotion of UPE is based on the recognition of positive externalities expected at this level of education (satisfaction of a fundamental right, effects on social attitudes, threshold effect - to be reached for growth to take place ...). This is also justified by the fact that the command of basic skills increases individual productivity in a wide spectrum of productive activities. Public funding of education beyond basic education must take more into account the labour market situation and the measure of social benefits specifically related to it. It is clearly of no advantage to society to finance studies in areas where many, who are qualified, are unemployed or occupy massively underqualified positions. Public funding at this level of education must maintain or retrieve its role as a regulation instrument, by encouraging individuals to choose the most useful fields and forms of study for society as a whole and leaving them the responsibility for choices that individual interest alone justifies.

Reference to the characteristics of educational investment only defines the general orientation and directions, which when translated into concrete actions, concerning the type and level of financing and the levels and fields of studies to be promoted, remain very much open. This operationalization can (and undoubtedly must) remain very pragmatic and be the subject of experiment. On the actual financing level, there is a vast catalogue of actions ranging from direct aid to loans through tax aid, the advantages and disadvantages of which differ as to the goal targeted and also the population concerned.

Reservations concerning public funding of post-compulsory levels of education are not only to do with their greater sensitivity to the state of the national market. They also concern the possibilities for enhancing the value of human capital outside the national territory, which rise with the level of education. Managing this problem is delicate insofar, as this type of mobility most often concerns very useful skills for the country, which can as such justify additional support. It is therefore necessary to develop flexible solutions depending upon the choice of activities in the country or abroad, like, for example, guaranteed loans intended to cover the cost of study for which repayment would be reduced or even cancelled for those who qualify and work on the national territory.

The search for equity obviously leads to qualifying the previous elements and to justifying payment of the cost of study and disbursements for financing educational investment, as long as these actions are limited to the most underprivileged individuals or groups. Beneficiaries must be precisely targeted to ensure that this policy corresponds to that of cost-effectiveness and is coherent with its orientations. While the promotion of an equitable education system justifies that public aid to beneficiaries should concern all levels and types of education, on the one hand, it is hardly conceivable that this aid would enable individuals to follow lines of study that society is, on the other hand, trying to cut back.

More globally, economic theories on education make public funding of education itself an investment, which, in this respect, enters into competition with the other collective actions contributing to development and growth. In this perspective, the social or community effectiveness of education is also defined in comparison with the sacrifices it leads to, due to

³ Filter theory vs. human capital theory (Dakar+5 Report UNESCO BREDA 2005).

the fact of the undeniable existence of a global financing constraint. These sacrifices may affect the content and quality of education; they can also concern investments enabling more direct stimulation of growth and job creation. Within educational policy, it is important to maintain a balance between the quality of education provided, which is increasingly seen to play a role in growth, and its cost for individuals. When access to the education system is financed to the detriment of its quality, which is far from constituting an exemplary hypothesis in many countries, an absurd situation is reached where none of the community objectives of education (effectiveness and equity) can be attained. On the contrary, this leads to the development of a parallel private system and to the reinforcement of inequalities.

In the same way, to invest in education without worrying about the other public investments contributing to growth (infrastructure, market structuring, health and development of the financial sector...) would be just as criticisable. There again, the difficulty resides in finding a balance, concerning this time the formation of human capital and the development of favourable job opportunities to use it fully. The fact that finding this balance is delicate is not enough to justify the situation observed in many countries today, where massive lasting unemployment of qualified individuals coexists with wide public funding of education and chronic underinvestment in the other factors of growth. Worse, the individual and community rationale, whereby education answers (or at least is adjusted to) the needs in

terms of employment, is sometimes inversed when public jobs are created artificially in order to absorb the overproduction of qualified individuals⁴ and temporarily defuse the social and political problem it incurs.



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4 Keller and Nabli (2002) have carried out a very enlightening study on the different aspects concerning the employment situation and use of the fruits of growth in the Middle East & North African region.

2. What are the specific social effects of post-primary education?

The social effects of education can concern a variety of dimensions such as health, mortality, civic life (more educated individuals can better participate in organized community life), political choices or reproductive health (spacing out births, use of contraception, etc.). Delinquency, prejudice, and attitude towards ecology are all variables that can be related to the level of education at the levels of the individual and of society (Baudelot and Leclercq, 2005). Some can be measured easily, others not. Topics such as prejudice, political choices and participation in community life are complex and very difficult to measure synthetically (for example, participation in society can include attitudes such as voting, belonging to a political party or its funding, public expression of one's opinions, public demonstrations, strikes, etc.). It is nevertheless possible to explore the different dimensions for which data is available (at individual or society level) in order to have an idea of the specific contribution of each level of education socially.

In the African context, the MICS (*Multiple Indicators Cluster Survey*) and DHS (*Demographic Health Survey*) surveys are an interesting basis for analysing the social effects of education on individual data. In addition to the level of education and the number of years during which the individuals have studied, they provide information on individual literacy, birth control, antenatal and postnatal maternal attitudes, attention given to child health, sending children to school, etc.

This type of data has already been presented in the report published by BREDA in 2005, concerning sustainable literacy and maternal attitudes in terms of health and birth control⁵. They clearly show that positive attitudes in the different areas were connected to the level of education and particularly that, on average, educated women married and had children later, and adopted attitudes putting their own and their children's health less at risk. On reading these results, it could be seen that the effects grow with the level of education but, above all, that many of the effects were only present when the mother had benefited from a full course of primary education. The specific effect of post-primary education on adopting attitudes of a high social value appeared limited in many aspects, with the notable exception of the proportion of births attended by medical personnel, which was significantly higher amongst women who had benefited from 12 years of schooling than amongst those who had only attended primary school.

These results were obtained allowing for the existence of probable interaction between the length of study and other variables that are connected and are also liable to have a direct influence on attitudes: geographical location of the household and level of income⁶. The most educated individuals are found in urban areas and they benefit, on average, from higher income and provision of services more favourable to adopting some of the attitudes taken into consideration. Going back to the exception indicated above, it is clear that recourse to medical assistance on giving birth supposes that medical assistance is accessible and that households have the financial means to use it. In order to take into account the statistical liaisons between variables explaining attitudes, the simplest solution is to measure the impact of education in econometric models controlling the effect of geographical location and household income. The example of Mali completes the results presented in the BREDA report in 2005. The results are indicated in the following table, in the form of marginal effects observed between two successive levels of education.

In order to highlight the contribution of each level of education to each social attitude or result analysed, it is practical to break down (into percentage) the difference between the probabilities of occurrence of an attitude for the most educated (those who have attended tertiary education) and for the least educated (who have received no education at all).

⁵ The data, here, concern Cameroon, Côte d'Ivoire, Guinea, Niger and Chad.

⁶ Other variables would have deserved being taken into account but could not be observed.

Table 7.1: Consolidated measure of the social impact for adults of the different levels of education on a variety of social dimensions in Mali

Area of impact	Gap between no instruction and complete primary education	Gap between complete primary and complete lower secondary education	Gap between complete lower secondary and complete upper secondary education	Gap between complete upper secondary and tertiary education	Total
Literacy	46	49	5	0	100
Risk of relative poverty	38	32	22	8	100
Access of children to school	53	21	16	10	100
Population	28	21	24	27	100
Age of first birth	16	20	28	36	100
Spacing out births	40	20	20	20	100
Use of method of contraception	41	23	21	15	100
Total number of births	16	20	28	36	100
Maternal health	52	20	16	12	100
Antenatal check-ups	66	18	10	6	100
Vaccination before delivery	50	21	17	12	100
Assisted birth-modern personnel	40	23	20	17	100
Child health and mortality	52	18	16	14	100
Complete vaccinations	35	20	22	23	100
Vitamin A intake	94	6	0	0	100
Under-5 mortality	26	27	27	20	100
Overall score	43	23	18	16	100

Source: The Pôle de Dakar based on DHS survey, 2001

For example, the gap between the probability of literacy between someone who has attended primary education and another who has had no education at all corresponds to 46% of the gap in the probability of literacy observed between someone qualifying from tertiary education and someone with no education. Reaching lower secondary education corresponds to 95% of this gap, 46% for primary attendance and 49% specifically associated with lower secondary attendance. Higher secondary attendance adds little to this situation (5%) and tertiary education does not contribute significantly.

The initial observation is that the marginal effects of the different levels of education vary significantly, according to the different social dimensions. Regarding maternal health or the fact of sending children to school, the principal effect of education is obtained by the end of primary education. On the opposite, in the area of demographic variables, the effects of education are substantial through to tertiary education.

However, if we consider all the social dimensions tackled here and give them identical importance, it is seen, roughly, that primary education is the level of education generating the most obvious social impacts. All in all, a little over 50% of the social effects of education are already obtained with the six years of primary education. This figure is higher for health variables (over 60%) and a little less for the impact on population variables (a little under 40%). Aside from this, pursuing lower secondary education contributes positively but of lower intensity (around 25 percentage points); upper secondary education does of course accentuate the social impacts but finally to a relatively lesser extent (around 20 points).

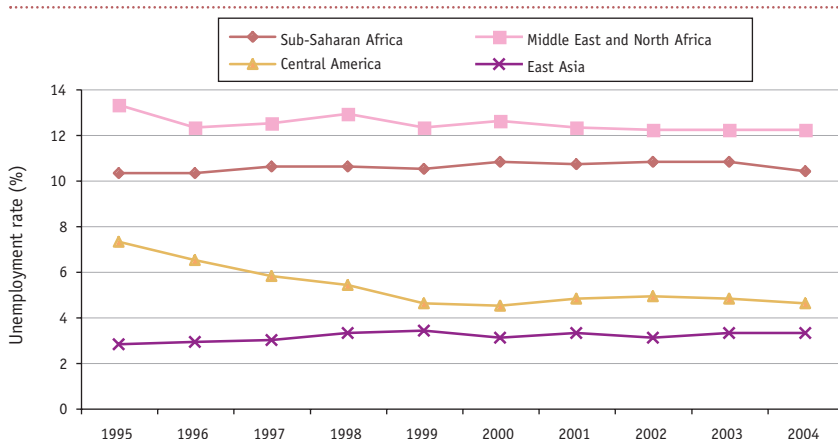
3. Access to employment for education system leavers in Africa

The needs of the economy, in qualified or highly qualified labour force, depend upon its structure, and particularly the relative importance of the rural, informal and modern sectors and of how dynamic each of these sectors is. It therefore appears essential to take into account the national employment context⁷ in defining educational policies, as this context sets the constraint in terms of job possibilities for education system leavers. However, sufficient data is lacking for precise analysis of the employment situation in African countries. A relatively patchy set of still incomplete information can be processed to apprehend the global characteristics of the employment context or the specific situation of young people, which suggests that there is a deep rift, both in quantitative and qualitative terms, between the number of leavers from the highest levels of education and the absorption capacity of the economies of a large number of African countries.

3.1 The global employment context and market structure

In Africa, the rate of unemployment is high on average, indicating a relative scarcity in job vacancies. In 2004, the International Labour Organization (ILO) estimated the rate of unemployment at 10.9% in sub-Saharan Africa and at 10.4% in Northern Africa. For the 1995-2004 period, it remained between 10.3% and 10.9% in sub-Saharan Africa, indicating a strong inflexibility (Tarantino 2003). Unemployment is therefore structurally high in Africa and there is little probability of a significant drop in this respect in coming years.

Graph 7.1: Rate of unemployment in sub-Saharan Africa, 1995-2004 (%)



Source: Tarantino 2004

However, for the reasons set out in box 7.3, the rate of unemployment is a very imprecise indicator of the imbalance on the labour markets in Africa and considerably underestimates the difficulties encountered by members of the working population to integrate the labour market.

⁷ It also appears essential to possibly take into account regional employment, especially for those qualifying from tertiary education.

Box 7.3: Underemployment as a measure of the imbalance of the labour market in Africa

Unemployment figures observed in African countries (an average of 11.4% for the WAEMU capitals⁸) seem low judging from the importance given to the employment problem in public debate and to household impressions⁹. The gap largely results from the fact that the unemployment indicator does not sufficiently report on the specificities of the African labour markets. Thus, a low unemployment rate is far from corresponding to a reality of full employment. It generally results from a forced transfer of labour towards self-employment in a hardly productive informal sector, or from traditional work patterns, common in many rural communities, where the available chores are absorbed by the community as a whole, at the risk of reducing the total hours worked and the income of all the members of the community¹⁰. Thus, many people work less, earn less, and use their skills below capacity.

In addition, the only measure of unemployment, as applied in developed countries (job seeker not working during the period of reference, actively seeking a job and available to fill it), is quite insufficient for grasping the difficulties of the labour market as a whole in Africa. The African labour market is indeed characterised by the absence of unemployment coverage, predominant family and social networks in seeking a job, the large proportion of self-employment, of child labour and unpaid family labour, the difficult distinction between productive and non-productive labour, problems connected to the period of reference and to seasonal work. Most workers find a job thanks to family and social networks (and to a lesser extent through individual search for salaried employment), and the absence of job search is often explained by the need to look for funds in the case of self-employed workers. Similarly, some workers do not actively look for a job because they have the impression that there are no opportunities («discouraged» workers). Direct application of the International Labour Organization (ILO) indicators could lead to considering them as part of the «non-working population» and thus play down the scale of employment problems.

These peculiarities result in a vast distortion between the low value of the ILO rate of unemployment and the permanent reality of the difficulties in labour market integration for the African work force. Thus, once the «discouraged» workers are included in the unemployment figures, the rate of unemployment rises to almost 50% on average for the West African capitals (ranging from 11.4 to 15.9%), with a high peak for Niamey and Dakar (+78% and +62% respectively). These wider rates of unemployment would thus be considerably higher than those corresponding to a more restricted definition.

Moreover, the adjustment of the labour market by the variation in the number of people working according to vacancies seems to be less than the adjustment via the quality of employment. The employment problem is indeed more qualitative than quantitative. The notion of underemployment better and more completely summarizes the different forms of distortion on the labour market, caused by the poor distribution of labour resources or a basic imbalance between work and the other factors of production, raising the question of the local underusage of the labour force: underemployment is to the labour force what underusage of capital is to business. According to the ILO, underemployment exists «when the duration and productivity of a person's job are inadequate, compared to another possible job that this person is willing to fill and capable of filling». This underemployment of labour was used to be called «disguised unemployment»¹¹. Underemployment is therefore the inadequate use of the labour supply, by a productive system that has a weak level of capital, organisation or technology.

Source: DIAL, Paris

8 ILO rate of unemployment in 7 out of the 8 West African Economic and Monetary Union (WAEMU) capitals (Abidjan, Bamako, Cotonou, Dakar, Lomé, Niamey, Ouagadougou ; PARSTAT Project, DIAL Surveys 1-2-3, AFRISTAT, European Union, 2001-2003).

9 Lack of employment is mentioned by the population as the country's major problem in the household replies to the «Governance» module, Surveys 1-2-3, PARSTAT Project », Razafindrakoto & Roubaud, 2005.

10 Haritchelhar, 1980 and ILO, 1998.

11 Robinson, 1937.

In order to better figure out the global employment context in Africa, it is therefore necessary to have recourse to the idea of underemployment. There are generally two types of underemployment, visible and invisible. Visible underemployment concerns members of the labour force working involuntarily part-time, due to reasons connected to the employer or to a poor economic situation. On the one hand, it concerns people working part-time¹² wishing to work more and available to do so (whether actively seeking an extra job or not), and on the other hand, those working full-time, but who worked less than usual during a reference week due to a slow down in business, a reduction in seasonal activity, bad weather, etc. The volume of working hours enables to quantify the extent of visible underemployment. Surveys 1-2-3 on the economic capitals of the WAEMU countries show that all those who work less than 35 hours involuntarily represent 14.3% of the employed working population, and thus indicate massive underemployment. The rate of visible underemployment is fairly homogeneous from one city to another, ranging from 10.6% in Ouagadougou to 17.1% in Bamako and Lomé. On the one hand, visible underemployment is highest in the informal sector, reaching 15.5%. On the other hand, the other sectors are relatively unaffected, with a rate of around 10%.

Invisible underemployment is more difficult to measure. It corresponds to the case of the worker who is underpaid compared to his profession. Thus, an individual who earns an hourly wage that is below an adequate standard of income for his/her level of qualifications and experience, is in a situation of invisible underemployment, in the same way as an individual who earns an hourly wage under the legal minimum. However, legal standards of minimum pay are generally irrelevant in sub-Saharan Africa, as they are not regularly updated¹³ and do not take into account the level of qualification and supposed productivity of the worker.

The existence of very long working hours may coincide with a situation of underemployment when this is made necessary by productivity or by an abnormally low hourly wage. The informal sector is the principal provider of employment in Africa but also the one that pays the least: while half the employed working population in the informal sector works more than 48 hours per week in the West African capitals¹⁴, two-thirds of this working population have earnings of under the minimum legal wage (invisible underemployment)¹⁵ compared to one-quarter of the working population in the private formal sector, and only 5% in the public sector. Segmentation of the labour market in Africa can also be observed through the contrasted levels of underemployment between the major institutional sectors. When workers in the informal sector desire, and are capable of, working more productively than at present, they are in a similar situation to those working part-time and who wish to work more¹⁶.

Table 7.2 shows the principal underemployment indicators in West Africa. If the different components of underemployment (unemployment, visible underemployment and invisible underemployment) are aggregated to obtain a synthetic underemployment indicator, a global underemployment rate of 67.1% is obtained for the seven large cities studied, i.e. around 2.7 millions of people out of more than 4 millions making up the working population.



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12 The normal working duration, for the activity taken into consideration, is defined in terms of legal hours or usual or normal hours completed by full-time workers. Most countries use a conventional uniform norm which may vary greatly in value, from 25 hours in Malaysia to 35 hours in West Africa, and up to 47 hours in Costa Rica (ILO, DIAL).

13 Moreover, a change in legislation or in its application can bring about a change in the number of people underemployed, which does not necessarily reflect a real change in the level of underemployment. In addition, legal norms are not of importance neither to all countries, nor for the workers, for example in the informal sector.

14 PARSTAT Project 2001-2003

15 The minimum salary must be considered more like a social norm connected to a national context, than like a universal and absolute referent (physiological minimum for subsistence for example): Brilleau, Roubaud, Torelli, Stateco n°99, 2005.

16 Hecker, 1992.

Table 7.2: Measure of the different components of underemployment in the West African capitals

	Cotonou	Ouagadougou	Abidjan	Bamako	Niamey	Dakar	Lomé	Overall
ILO rate of unemployment	5.5	15.4	13.5	7.1	13.1	11.7	8.2	11.4
Rate of unemployment in the wider sense	6.8	22.4	15.8	12.5	23.3	18.9	11.2	15.9
Visible underemployment % of weekly work under 35 hours	13.4	10.6	12.6	17.1	16.0	16.2	17.1	14.3
Invisible underemployment % of employed working population with an hourly wage below the minimum legal salary	61.1	66.5	53.2	45.4	51.1	57.8	55.8	55.2
Invisible underemployment % of employed working population with a monthly salary below the guaranteed minimum wage	54.9	61.3	49.9	43.9	45.3	53.6	49.0	51.1
Minimum monthly income in CFA francs	25 000	27 080	36 000	22 000	22 000	39 000	13 800	

Sources: PARSTAT project 1-2-3 surveys, 2001-2003; DIAL, AFRISTAT, European Union, National Institutes of Statistics, DIAL calculations

The different indicators therefore suggest considerable employment difficulties on the continent, which are in no way explained by overly high salary requirements, as shown in box 7.4.

Box 7.4 The issue of salary requirements

It is generally put forward that individuals are out of work because their salary requirements are higher than wages available on the job market. The results of the 1-2-3 surveys enable analysis, as to what extent this hypothesis can be confirmed for the largest cities in some African countries. In these surveys, the reservation wage of the unemployed is known, i.e. the minimum salary they declare to be ready to accept. In order to analyse the compatibility between the salary demands of the unemployed and salaries practised on the labour market, the average unemployed reservation wage is compared to the average worker's wage. In 7 out of the 11 cities, the reservation wage is significantly higher than the average worker's salary. Ouagadougou, Niamey, Yaoundé and Antananarivo differ from the other cities with a reservation wage close to the average wage, and even lower. A priori, salary demands of the unemployed would thus be higher on average to what is offered on the job market. However, most of the unemployed (52%) are looking for a salaried job, and so modern rather than informal. The modern sector seems therefore to be a better reference than the labour market as a whole for analysing salary appropriateness. With this new reference, the reservation wage is seen to be under or equal to the average salary of workers in the modern sector, in 7 out of the 11 cities. On this basis, the salary requirements mentioned would not therefore be systematically a curb to their integration in the labour market.

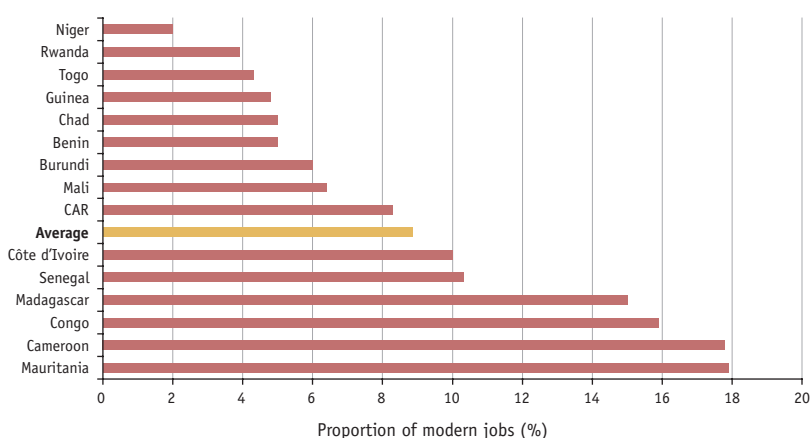
Relationship between average reserve salary and average salary in the different institutional sectors for the 25-34 age group

	Modern sector	Informal sector	Overall
Dakar 2002	1.02	2.23	1.74
Lomé 2001	1.11	2.84	2.24
Cotonou 2001	1.03	1.94	1.66
Bamako 2001	0.74	1.39	1.16
Ouagadougou 2001	0.74	1.82	1.26
Abidjan 2002	0.99	2.70	1.84
Niamey 2002	0.77	1.38	1.09
Kinshasa 2004	6.66	3.66	4.07
Yaoundé 2005	0.71	1.43	0.98
Douala 2005	0.93	1.75	1.26
Antananarivo 2004	0.73	1.15	1.07

Sources: AFRISTAT and DIAL 1-2-3 surveys

In other respects, information available on the structure of existing jobs shows that the principal characteristic of African labour markets is the narrowness of the modern sector. ILO (2002) estimates that the share of formal jobs amongst non-agricultural jobs was of 38%, for the period 1994 to 2000. Now, in a large number of countries, the agricultural sector predominates (with over 60% of jobs) and is, to a great extent, informal. It is therefore very likely that the modern sector of the economy is even narrower if jobs are considered overall. In a sample of about fifteen countries, where recent data is available, the share of the modern sector in overall jobs is estimated at around 10% on average (graph 7.2). This figure is therefore very low compared to the share of informal jobs, representing an average of 90% of national jobs.

Graph 7.2: Proportion of modern jobs in a sample of African countries



Sources: *The Pôle de Dakar* and *CSR*, 1999 to 2005

Thus, the global context of the labour market, wherein the connection between education and the economic sphere and that of the relevance of the development of post-primary levels of education must be analysed, is thus characterised by two structural constraints: one related to the availability of jobs and the other to the narrowness of the modern sector of the economy. A priori, this situation appears globally unfavourable to the employment of highly qualified individuals, adapted to the modern sector. However, this assertion needs to be confirmed by facts. Generally, it can be asked if the chances of successful labour market integration¹⁷ differ according to the level of education and the field of study chosen.

3.2 The situation of post-primary school leavers on the labour market

While analysis of the situation, with regard to employment per level of education which is more particularly the subject of this section, is complex, it is even more so when it aims at being comparative. Data collected in the framework of national sector-wide analysis will be referred to here, concerning the overall territory of the countries studied, as well as AFRISTAT and DIAL 1-2-3 survey data, which is restricted to 11 African French-speaking capital cities but provides comparable data.

¹⁷ Successful integration means both the individual chances of finding a job and the probability for individuals to use their qualifications to the fullest in the job they may have found.

Paradoxically, the integration difficulties affecting young people in Africa concern, more particularly, those with the most qualifications. For all the countries in table 7.3, unemployment is seen to be higher for individuals who have reached the highest levels of education, although the limits already mentioned must be taken into account when looking at this indicator. When the same country is represented in both data sources, the level of unemployment is seen to be significantly lower in the capital cities than in the rest of the country, but the superiority of the rate of unemployment for the highest levels of education is confirmed in both contexts. The relationship between unemployment rates for the most educated and the least educated is often very high and is over two in six countries (Guinea, CAR, and also Lomé, Cotonou, Bamako and Abidjan).

Table 7.3: Unemployment rate for the 25-34 age group (%)

	Individuals who have reached the low part of the education system (below upper secondary) [1]	Individuals who have reached the high part of the education system (above lower secondary) [2]	Ratio [2] / [1]
The Pôle de Dakar or CSR data			
Cameroon	16.1	29.4	1.8
Congo	26.5	37.9	1.4
Guinea	13.8	35.1	2.5
Mali	17.8	30.4	1.7
Mauritania	35.8	33.8	0.9
CAR	7.4	20.0	2.7
Senegal	31.3	33.5	1.1
1-2-3 Data			
Dakar	14.4	21.8	1.5
Lomé	5.8	20.0	3.4
Cotonou	5.9	14.7	2.5
Bamako	7.7	19.7	2.6
Ouagadougou	14.7	25.0	1.7
Abidjan	13.4	27.0	2.0
Niamey	11.9	13.8	1.2
Kinshasa	13.3	22.2	1.7
Yaoundé	11.9	18.2	1.5
Douala	14.6	17.5	1.2
Antananarivo	6.3	9.3	1.5

Sources: The Pôle de Dakar : Cameroon : ECAM 2001, Congo : ECOM 2005, Guinea : QUIBB 2002, Mali : EPAM 2004, CAR : RGPH 2003, Senegal : QUID 2001; CSR : Mauritania 2005; DIAL : PARSTAT project for 7 out of the 8 WAEMU capitals(2001-2003), Survey on Employment and Informal Sector (EESI) in Cameroon (2005), 1-2-3 in Kinshasa (2004), 1-2-3 survey in Madagascar (Madio Project, 2006).



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More subject to unemployment, the most educated young working population is not systematically employed in the formal sector (table 7.4). In the seven countries, for which the Pôle de Dakar has obtained detailed data on the structure of jobs filled according to the level of education, it is seen that on average almost 50% of young educated workers (higher level than lower secondary education) are employed in the informal sector. In Congo and Guinea, less than 40% of the most educated young workers fill a job in the formal sector. The same situation is observed on the urban market in the capital cities studied by AFRISTAT and DIAL. In this particular context, where formal jobs are concentrated, often more than one-third of the most educated young workers are employed in a job in the informal sector (with the exception of Niamey and Ouagadougou with a proportion of only 27%).

Table 7.4: Distribution of the most educated workers in the 25-34 age group¹⁸ according to the institutional sector

%	Modern jobs		Non-agricultural informal	Agro-pastoral jobs	Modern jobs	Informal & agro-pastoral jobs
	Public	Private				
The Pôle de Dakar or CSR data						
Cameroon	17.9	34.2	31.5	16.3	52.1	47.9
Congo	16.5	22.4	48.7	12.4	38.9	61.1
Guinea	23.2	9.0	61.6	6.2	32.2	67.8
Mali	24.3	24.8	47.6	3.4	49.1	50.9
Mauritania	62.6		33.4	4.0	62.6	37.4
CAR	25.7	26.8	33.5	14.0	52.5	47.5
Senegal	32.4	31.0	30.9	5.7	63.4	36.6
Average	-	-	41.0	8.9	50.1	49.9
1-2-3 Data						
Dakar	18	37.1	43.8	1.1	55.1	44.9
Lomé	15.6	26.7	57.0	0.7	42.3	57.7
Cotonou	21.2	36.5	42.1	0.2	57.7	42.3
Bamako	26.5	35.4	37.0	1.1	61.9	38.1
Ouagadougou	39.8	33	27.1	0.1	72.8	27.2
Abidjan	17.4	39.8	41.1	1.7	57.2	42.8
Niamey	46.7	25.9	26.9	0.5	72.7	27.3
Kinshasa	14	11.9	74.0	0.1	25.9	74.1
Yaoundé	21.9	33.4	43.5	1.2	55.4	44.6
Douala	8.9	45.6	44.9	0.6	54.5	45.5
Antananarivo	11.8	52.4	34.4	1.4	64.2	35.8
Average	22.0	34.3	42.9	0.8	56.3	43.7

Source: Ditto table 7.3

In addition, participation by the most educated young workers in the modern sector is not systematically associated with filling a qualified job. Data on table 7.5 shows indeed that while the proportion of educated young workers occupying a non-qualified job in the modern sector is low in Mali and Cameroon, it reaches 31.9 and 46.7% respectively in Congo and Central African Republic. Those qualifying from tertiary education are better protected from this risk than those qualifying from general and technical secondary education. As far as the modern labour markets in the capitals covered by the AFRISTAT and DIAL surveys are concerned, the share of educated young workers filling a non-qualified job varies from 17.6% in Bamako to 61.3% in Kinshasa, and is over 25% (i.e. the most educated quarter of the modern sector) in 7 of the 11 cities. Again, the situation for those from tertiary education is somewhat better on average from this point of view than for those qualifying from general and technical secondary education even if, almost systematically, around 10%

¹⁸ This group comprises working population having reached upper general secondary, technical and vocational or tertiary education.

Table 7.5: Distribution of the most educated workers in the 25-34 age group according to the type of job in the modern sector (%)

	Type of job	Upper general secondary	Technical secondary	Tertiary education	Overall
Cameroon	Executives	33.2	27.6	67.9	43.3
	Other qualified modern jobs	48.5	48.5	25.0	40.8
	Non-qualified modern jobs	18.3	23.9	7.1	15.9
Congo	Executives	23.6	44.0	62.3	25.7
	Other qualified modern jobs	39.7	43.6	25.1	40.3
	Non-qualified modern jobs	36.7	12.4	12.6	31.9
CAR	Executives	16.1	21.7	38.9	9.2
	Other qualified modern jobs	57.0	46.1	31.5	44.1
	Non-qualified modern jobs	26.9	32.3	29.6	46.7
Dakar	Executives	12.3	0.0	43.2	23.1
	Other qualified modern jobs	45.8	41.2	42.0	44.4
	Non-qualified modern jobs	41.9	58.8	14.8	32.5
Lomé	Executives	16.3	13.4	40.4	23.3
	Other qualified modern jobs	54.1	52.4	35.3	48.2
	Non-qualified modern jobs	29.6	34.2	24.3	28.5
Cotonou	Executives	20.1	25.7	67.2	40.7
	Other qualified modern jobs	50.9	51.8	21.8	38.9
	Non-qualified modern jobs	29.0	22.4	11.0	20.4
Bamako	Executives	32.3	65.1	76.5	54.3
	Other qualified modern jobs	43.9	20.7	10.8	27.8
	Non-qualified modern jobs	23.8	14.2	12.7	17.9
Ouagadougou	Executives	25.1	25.5	74.5	39.9
	Other qualified modern jobs	40.1	36.7	21.5	34.1
	Non-qualified modern jobs	34.8	37.8	4.0	26.0
Abidjan	Executives	17.3	4.5	55.0	34.1
	Other qualified modern jobs	38.5	41.2	28.1	33.7
	Non-qualified modern jobs	44.2	54.3	16.9	32.1
Niamey	Executives	45.1	52.0	25.6	60.4
	Other qualified modern jobs	29.3	18.8	29.2	18.9
	Non-qualified modern jobs	25.6	8.4	13.6	20.7
Kinshasa	Executives	9.1	24.2	51.5	26.7
	Other qualified modern jobs	14.1	12.6	8.0	12.0
	Non-qualified modern jobs	76.8	62.2	40.5	61.3
Yaoundé	Executives	15.4	11.6	65.1	28.1
	Other qualified modern jobs	49.6	40.0	16.8	37.1
	Non-qualified modern jobs	35	48.4	18.1	34.8
Douala	Executives	9.3	8.3	43.8	16.1
	Other qualified modern jobs	42.5	37.9	29.1	37.8
	Non-qualified modern jobs	48.2	53.8	27.0	46.1
Antananarivo	Executives	7.7	17.9	38.4	21.5
	Other qualified modern jobs	63.9	71.9	50.9	58.9
	Non-qualified modern jobs	28.4	10.2	10.7	19.6

Source: Ditto table 7.3

of those qualifying from tertiary education fill a non-qualified job. With only a few exceptions (Bamako, Niamey), holding a technical certificate rather than a general secondary certificate does not guarantee more frequent access to qualified jobs in the modern sector.

It is possible to have another idea of this downgrade by building a measure of the appropriateness of the job¹⁹ filled to the level of education reached (table 7.6). In Congo, in 2005, 80% of the working population in the 25 to 34 age group who had been through tertiary education was over-qualified compared to the job filled. This overqualification leads to a downgrade that affects the national labour market as a whole insofar, as those trained in tertiary education that have a job and are overqualified tend to compete with those trained in upper secondary education, depriving the latter de facto from jobs corresponding more to their level of studies.

Table 7.6: Distribution of workers in the 25-34 age group according to the qualification in relation to the job filled (%)

		Upper secondary	Technical & vocational	Tertiary	Overall
Cameroon	Undereducated	0.0	0.4	0.0	0.1
	Appropriately educated	35.9	45.7	30.4	37.9
	Overeducated	64.1	53.9	69.6	61.9
Congo	Undereducated	0.0	2.2	0.0	0.7
	Appropriately educated	33.7	70.8	18.8	42.1
	Overeducated	66.3	27.0	81.2	57.2
CAR	Undereducated	2.3	0.0	0.0	0.7
	Appropriately educated	16.6	40.3	67.6	37.3
	Overeducated	81.0	59.7	32.4	61.9

Sources: Ditto table 7.3 for these three countries and authors' calculations

These different pieces of information illustrate the serious imbalance on the labour market as far as those qualifying from post-primary education are concerned and who are sometimes well in excess of job possibilities. Comparison of the stocks of jobs and the education system leavers per level of education illustrates this imbalance and offers a different picture of it. DIAL survey data makes it possible to compare the number of executives employed in the markets of the different capitals studied and the number of primo job seekers with tertiary education qualifications (table 7.7). In four capitals out of six, the number of primo job seekers qualified from tertiary education is the equivalent of at least a quarter of the stock of executive jobs. This proportion rises to 54.1% in Lomé and reaches 70.4% in Abidjan where current year leavers (primo job seekers declaring less than one year unemployment) represent 15.9 and 22.8% of the stock of executive jobs respectively.



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¹⁹ A worker is «appropriately educated» when the number of years he/she has studied is between more or less one standard deviation around the average number of years of study of workers in the same socio-professional category; he/she is «overeducated» or «undereducated» when the number of years of study is respectively higher or lower by at least a standard deviation to this average.

Tableau 7.7: Comparison of the number of executive job vacancies with the number of primo job seekers with qualifications from tertiary education

	Senior or middle executive [A]	Primo job seekers with qualifications from tertiary education [B]	Length of unemployment (year)						[C] / [A] (%)	[B] / [A] (%)
			0 [C]	1	2	3	4	≥ 5		
Cotonou	9 677	2 351	885	234	527	495	103	107	91	24.5
Ouagadougou	12 349	1 796	458	189	452	78	154	465	3.7	14.5
Abidjan	31 059	21 876	7 091	7 445	3 391	1 896	1 280	773	22.8	70.4
Niamey	11 800	1 149	344	372	174	94	48	117	2.9	9.7
Dakar	11 420	2 834	585	305	386	400	230	631	5.1	24.8
Lomé	5 160	2 794	820	724	390	603	163	94	15.9	54.1

Sources: 1-2-3 surveys, the Pôle de Dakar and DIAL calculations

The imbalance between supply and demand for skilled work has been measured quantitatively, through the rates of unemployment and the level of qualifications of the employed working population. It has also been shown that this imbalance resulted as much from the scarcity of jobs as from the existence of a supply of a surplus of very qualified work compared to job possibilities. Although these results have been highlighted on the basis of the analysis of French-speaking countries, Al-Samarrai and Bennell's study (2006) corroborates them, on the one hand, for four English-speaking countries (Malawi, Uganda, Tanzania and Zimbabwe), as far as secondary school leavers are concerned. For tertiary education, on the other hand, the authors' observations are less clear-cut but largely result from the methodology used by them (box 7.5).



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Box 7.5 : The future of qualified secondary and tertiary education leavers in four English-speaking African countries

By following the professional path of 5000 secondary and tertiary education leavers in **Malawi, Tanzania, Zimbabwe** and **Uganda** from the time they completed their studies, Al-Samarrai and Bennell (2006) describe in depth the professional and salary opportunities offered to these young people. This study, conducted in 2001, is original in that it has traced most of those («tracer survey») previously selected with the aim of constituting a sample representative of secondary and tertiary education qualified leavers five to twenty years on from the end of their studies²⁰.

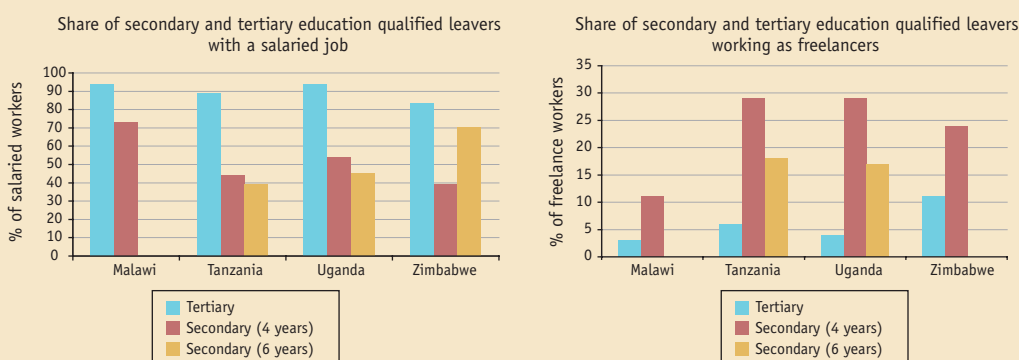
The young people, who stopped studying after secondary school, met with considerable integration difficulties: only half of them managed to find a salaried job²¹ and this proportion is still weaker for the most recent generations. Thus, for a higher and higher proportion of these young people, the only way to secure integration on the labour market is to create their own job. However, the study shows that these jobs are often insecure, require few qualifications and constitute second best choices that young people are forced to accept while hoping for stable salaried jobs. Besides, it seems that the salaried jobs filled by secondary leavers have depreciated since those obtained by the most recent generations are less well paid and demand fewer qualifications than those of their elders.

The students from the university faculties taken into account do not seem to have encountered integration problems: they are practically unaffected by unemployment and for the most part hold a salaried job, requiring the skills for which they were trained. Moreover, individual return to tertiary education is high since the income of those who have qualified from tertiary education is almost triple that of secondary leavers (it is six times higher in Uganda). However, the analysis is biased by the fact that the representativeness of the sample of tertiary education students is only partial as the graduates were selected amongst the most flourishing State university faculties on the labour market, i.e. engineering, medical and agriculture and two faculties for commerce, economy, accounting or education. Students from other faculties are not represented although they are representative of most students in African universities and the courses on offer are often more general and less profession-oriented.

Another result of this study is that the young people questioned in these four countries, whether having followed secondary or tertiary education, do not contribute to making the private sector more dynamic as very few of them start their own business and when they do, the company is very small and scarcely productive.

In conclusion, this study pinpoints the difficulty for young people to be integrated into the labour market upon secondary completion. The observation of the low external effectiveness of secondary education delivered in the early 1990's at economic level raises doubts as to the future of those currently leaving this level of education. This is because, since the 1990's, these countries have experienced a considerable increase in secondary enrolments²² without any consistent development in opportunities on the labour market. It also comes out of this study that investment in tertiary education enabling the acquisition of specific skills in line with the labour market, as is the case here for students in agriculture and engineering or medical students, is very beneficial both at individual level and at the level of the society, on the one hand. On the other hand, this study does not make it possible to come to a conclusion on the external effectiveness of tertiary education as a whole as nothing is said on the future of students from more general courses of study, which do however train the mass of students.

Distribution of secondary and tertiary education leavers according to their professional occupation



Source: Based on Al-Samarrai and Bennell (2006)

20 The young people interviewed completed their studies in 1990 and 1995 for secondary education, and in 1980, 1987, 1994 and 1999 for tertiary education.

21 With the exception of Malawi where this proportion is 70%.

22 Pupil numbers in general secondary have been multiplied by nine in Malawi, by three in Tanzania and in Uganda between 1990 and 2005.

4. The contribution of the different levels of education to economic growth

Public funding of educational investment is justified by its contribution to the human, economic and social development of the nation. To decide upon possible intra-sector trade-offs, it is therefore appropriate to analyse the marginal contribution of each level of education to growth and development. To do so, comparative international data must be assembled, in order to measure over a sufficiently long period of time the contribution of education and of each level of education to the economic development of the countries. The economic development indicator generally used is the growth rate in GDP or in GDP per capita.

Some studies have shown that the contribution of education to economic growth might vary, according to the context and to country characteristics, specific, or not, to their education system (Dessus 2000). Others have even mentioned the possibility of differentiated effects of the different levels of the education systems, depending upon the stage of economic development of the different countries (Mingat and Tan 1996, Aghion and Cohen 2004) or the degree of urbanisation and the productive structure of the countries (Ambert and Chapelle 2003). For example, Aghion and Cohen show that the marginal return to one year of primary or secondary education tends to decrease (as opposed to that of tertiary education) as a country moves closer to the technological boundary (i.e. as it develops). Other studies show that the quality of education is also a key factor of economic growth (Hanushek and Kimko 2000, Hanushek and Woessmann 2007).



Mingat and Tan's analysis (1996) covered about one hundred countries observed between 1960 and 1985. Insofar as economic conditions have distinctly changed since that time, especially in African countries, it is crucial to know if the conclusions drawn from their work are still relevant. This is one of the issues tackled in a recent study by Foko and Brossard (2007), on the basis of a sample of about one hundred countries at varying stages of development, observed between 1970 and 2003. The methodology used by the authors is roughly outlined in box 7.6.

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23 Aghion and Cohen's analysis (2004) mainly concerns the OECD countries. Ambert and Chapelle's work (2003) concerns the principal States of the Indian Union observed between 1970 and 1993 (panels).

24 In particular, the economic situation in sub-Saharan Africa was favourable until the mid 1970's (for some countries until the mid 1980's). Most of these countries went into recession until the early 1990's. It must be noted that some middle-revenue countries experienced serious financial crises in the 1990's.

Box 7.6 : Methodology (outline) for testing the effect of the different levels of education on growth (Foko and Brossard 2007)

This study refers to the conditional convergence ratio similar to that estimated by Barro (1991), World Bank (1993), Berthélemy and Varoudakis (1995), Mingat and Tan (1996) or Mingat and Suchaut (2000) :

$$\ln(Y_{i,T}) - \ln(Y_{i,0}) = -(1 - e^{-\lambda T}) \ln(Y_{i,0}) + Z_i \quad (1)$$

where Y designates the real GDP per capita of the country i , λ is the speed of convergence towards the path to long-term growth during the period $[0, T]$, Z_i is the real GDP per capita in long term. Z_i is under the influence of economic policies (and particularly education policies) or of different institutional factors. This study looks more particularly at the effect of human capital on growth (through Z_i). The investment ratio (Investment / GDP) is also included in the model, and is treated as control variable. The endogeneity of the investment ratio is controlling by using instrumental variables: the degree of openness of the economy and the degree of rationing of credit (share of private sector credits in the GDP). The indicators of human capital used refer (i) to the global coverage of education systems, measured by school life expectancy, or (ii) to the enrolment rates at the different levels of the system (primary, secondary - if possible differentiating lower and upper secondary, tertiary education). As for the investment in physical capital, this is measured by the average ratio of investment to GDP.

Basically, (1) is written as : $\Delta Y_{1970-2003} = F(ED_{1970}, \ln Y_{1970}, \overline{INV}, \Delta POP_{1970-2003}) \quad (2)$

where $\Delta Y_{1970-2003}$ designates the average annual growth rate of the real GDP per capita between 1970 and 2003 (real GDP per capita is measured here in 2000 US dollars); Y_{1970} the real GDP per capita in 1970 (taking it into account in the model enables to test the international convergence of the growth rates and to contextualise the effect of human capital on growth); ED_{1970} the variable(s) of human capital measured in 1970 ; \overline{INV} the average rate of investment over the period ; $\Delta POP_{1970-2003}$ is the average growth rate of the population; F designates a functional form.

The enrolment rates used come from the UNESCO Institute for Statistics; the other data are from the World Bank (World Development Indicators 2005). Some readjustments have been made on the basic data (reestimation of some enrolment rates based on UNESCO data and United Nations demographic tables). Different types of estimation have been conducted, according to whether the human capital indicator is used in its aggregate form (school life expectancy, average number of years study per worker) or disaggregate (enrolment rates per levels of education). In addition, following on from Mingat and Tan (1996), the hypothesis of a variability in the effectiveness of human capital (aggregate or not) according to the rate of development of the countries has been tested.

Enrolment rates turned out to be significantly correlated with each other. Tertiary education coverage in 1970 was significantly correlated to that of secondary education (correlation factor of +0,696), itself correlated to that of primary education (correlation of +0,527). It is therefore not easy to distinguish the effects on economic growth. To lift this vagueness on the effective contribution of the different educational levels, an «orthogonalization» of enrolment rates has been carried out based on the rationale of «sequential» development of the different levels of education. In this framework, for example, the secondary enrolment rate has been replaced by this rate's component, which is not systematically connected to the primary enrolment rate. Indeed, at comparable levels of primary coverage, secondary education is more or less well developed according to the country; it is this somehow «premature» or «deferred» development of secondary education compared to primary education which is taken into account through this new indicator. In the same way, an indicator of quantitative over- or under-dimensioning of tertiary education compared to primary and secondary levels has been built. As a result, the models take into account, in addition to primary enrolment rate, the indicators of over- or under-dimensioning of secondary education and tertiary education compared to the lower levels.

Source: Foko et Brossard 2007

In this study, the average level of education of the population at the beginning of the period and schooling coverage at the different levels of education was positively correlated to subsequent macroeconomic performance for all countries observed. For example, when other characteristics were comparable (especially the rate of investment in infrastructure and productive sectors), the countries where the working population had one year schooling more than the average in 1970 had 0.2 more points of real GDP growth per capita in the thirty ensuing years²⁵. In other words, when we compare two countries with the same level of income per inhabitant in 1970, the one where the population benefited from one year of study more than average at that date obtained an income of 6 to 7% higher on average per inhabitant in 2003.

When examining the specific contribution of the different levels of education to economic growth, it is noticed that this is statistically significant for primary and secondary education. The contribution of tertiary education is positive but not systematic, which suggests that a «premature» development of tertiary education is not necessarily an advantage for economic growth: there would be some countries, unlike others, where highly skilled labour has been assigned to low-production jobs. It therefore appears useful to take into account the context in which highly skilled labour is used (productive job opportunities, size of the structured sector, productive structure of the country, etc.).

Are these average results valid in all countries? The idea that human capital would have variable productivity according to the context in which it is used is not new. Work conducted by Schultz (1975)²⁶ or, in a microeconomic frame, by Foster and Rosenzweig (1996)²⁷ provided some initial insight into this issue. At macroeconomic level, the growth models known as innovation-imitation are based on the principle of education having a differentiated effect on economic growth, through innovation-research in rich countries and through poor countries catching up technologically. The stage of economic development of the different countries is therefore a high contextual variable²⁸.

Mingat and Tan (1996) and Foko and Brossard (2007) show in their work that it is the development of primary education that has been of advantage to economic growth in the poorest countries, that of secondary education in middle-income countries and that of tertiary education in the most advanced countries. At secondary level, Foko and Brossard show that the positive contribution to growth observed in middle-income countries has to do principally with the high contribution of lower secondary; the development of upper secondary (beyond projections made on account of the progress made at the lower levels, i.e. primary and lower secondary education) seems to have even acted as a curb to subsequent economic growth.

25 This result is relatively close to that obtained by Barro (2001), which is 0.44 points - but only for the average length of study time in secondary and tertiary education for male workers; Foko and Brossard (2007) deal in fact with the average duration of schooling, calculated on a pseudo-cohort of young people still in the education system. Aside from these conceptual differences, there is a temporal gap, more or less significant, according to the country (cf. earlier sections), between leaving the education sphere and gaining access to employment.

26 Stated by Gurgand (2000, p. 17). «Return to education would be all the higher as individuals find themselves in a highly unbalanced economic universe».

27 Stated by Gurgand (2000, p. 19): «The effect of education on agricultural profit is all the greater as the farmer is in a district of India where technical change has been faster».

28 This approach is followed by Mingat and Tan (1996). Other studies, on the other hand, test the variability of the impact of human capital according to the productive structure of the country (Ambert and Chapelle 2003) or parameters connected to the very functioning of the education systems such as resources, teaching/study conditions and the distribution of human capital in the population (Dessus 2000).

Table 7.8 provides a synthesis of the extent of the effects of human capital in the 1970's on subsequent economic growth.

Table 7.8: Qualitative appreciation of the impact of the initial level of education on economic growth between 1970 and 2003

Level of education in 1970	Level of income in 1970			Countries overall
	Low income	Middle income	High income	
Primary	+++	0	0	+++
Secondary	0	+++	0	+++
Tertiary	0	0	+++	+
Average education system coverage (School life expectancy)	++++	+++	++	++

A « + » sign indicates the existence of a positive marginal contribution to economic growth. Their number indicates the intensity of same. A « 0 » indicates a positive marginal contribution that is not significant. Source: Foko and Brossard (2007)

In order to pursue these interrogations, it is interesting to attempt to measure the relative weight of educational policies in the factors that can give an understanding of the dynamics of the countries' economic growth. Do these policies have an influence on the transition from a situation of a low-income country or middle-income country to a situation of a high-income country? Why do some countries remain under the low-income trap door (in the poverty trap)? These are questions that go beyond the scope of this report, which can even so contribute to the considerations to be given to these issues.

As shown in table 7.9, low-income countries have shown radically different and significantly lower performance than the other groups of countries taken into consideration here, both in terms of the average rate of investment and in economic growth itself. This said, some of them have experienced much better growth than others (low-income countries have registered a rate of growth varying from 0.4% to 2.5% on average since 1970, according to the classification used).

- In low-income countries showing lowest performance over the period analysed, the shortfall in «human capital», due above all to the fact that primary coverage, is far from universal, accounts three times more for the low growth rates registered than the deficit in terms of investment. In these countries, the primary enrolment rate was only 57% compared to 91% in initially low-income countries that have joined the «club» of middle-income countries at the end of the period. More than half of the countries, belonging to the category of countries that have remained amongst the poorest in the world, are to be found in sub-Saharan Africa (27 of the 45 countries in this category in the sample).
- In what were low-income countries initially now having joined the group of middle-income countries, there has of course been a relative abundance of «human capital» and physical capital (the average rate of investment was 25% compared to 21% in low-income countries as a whole in 1970). However, it is the extensive primary coverage which accounts the most²⁹ for the subsequent macroeconomic performance of these countries. Egypt, Swaziland and Tunisia are examples of this category of country.

²⁹ For economic growth, human capital made a contribution 8 times higher than the relative abundance in physical capital.

Table 7.9: Comparison in performance of the different groups of countries (1970-2003)

	Level of income in 1970					
	Low-income countries			Middle-income countries		Rich countries
	Overall	Still low income in 2003	Middle income in 2003	Overall	High income in 2003	
	55 countries	45 countries	10 countries	39 countries	7 countries	23 countries
Investment / GDP, average (%)	21	20	25	24	25	24
GDP per capita 2003 (000's of 2000 US\$)	0.7	0.5	1.8	7.5	18.7	25.9
SLE 1970 (years)	4.5	4.0	5.9	8.1	8.9	11.0
Primary GER 1970 (%)	62	57	91	100	99	100
Secondary GER 1970 (%)	13	11	21	29	46	60
Tertiary GER 1970 (%)	3	2	5	7	9	18
Growth GDP/capita. average (%)	0.8	0.4	2.5	1.9	3.0	1.7
Gap with average growth of the group	0	-0.4	1.7	0	1.1	0
Contribution to the gap observed, as multiple of the contribution of the investment differential a						
SLE	--	1.4	1.6	--	2.2	--
Primary GER	--	2.9	8.4	--	--	--
Secondary GER	--	--	--	--	1.6	--

Source: Foko and Brossard (2007)

The cells highlighted in yellow correspond to the educational variables which proved to have a positive impact on economic growth.

a/ Growth is broken down, based on the growth equations estimated separately for low-income countries and middle-income countries. Then the predicted growth for all low-income countries is compared with growth predicted for the sub-group of 45 countries which still have low income in 2003. In the first case, it is then possible (on the hypothesis that the factors explaining growth are little correlated) to calculate the contribution of the different factors to the gap between predicted growth for these 10 countries and that predicted for low-income countries as a whole. In the table, we have focused attention on the contribution of human capital variables, compared to that of another major determining factor of economic growth: the rate of accumulation of physical capital. It is then proceeded in the same way for the other 45 countries. As for middle-income countries that have become high-income countries, they are compared with all those countries with middle income in 1970.

No African country belongs to the group of countries that was initially in the middle-income group in 1970 and has now become high-income countries. For countries in this group where data is available (notably Spain, Hong Kong, Ireland, French Polynesia, Porto Rico and Singapore), the macroeconomic performance can be explained, first of all, by the high secondary school coverage in the early 1970's³⁰. In these countries, five in ten young people were enrolled in secondary education in 1970, compared to fewer than three in ten for middle-income countries as a whole. It is undoubtedly of use to point out that over an earlier period (between 1960 and 1985), the principal determining factor for economic growth in Hong Kong and Singapore was the high primary education coverage in the early 1960's (World Bank, 1993). It can be seen that the development of secondary education was one of the major determining factors in economic growth after that time (starting 1970). These results tend to confirm the idea that it is necessary to take the opportunities in the productive sectors into account when promoting levels of education.

30 The contribution of secondary education to economic growth was 60% higher than the contribution of physical capital, which is one of the main determining factors of economic growth in these countries.

5. Conclusion

The development of post-primary education, and especially public funding of same, depends upon the assessment of the economic and social benefits that society is liable to gain from it, at a given period and in a given context, more than for primary education for which there is a consensus on public funding. The previous chapter showed the limits that could be encountered in many countries by funding post-primary education, if it were to continue growing at the current pace and the urgent need for a quantitative adjustment at least. This chapter highlights the need to take the marginal benefits the countries can expect on both social and economic levels into account in this adjustment.

Social benefits from education apply to the different levels of education but a large share of these benefits is acquired upon primary completion. For many countries where financing constraints still weigh on the attainment of UPE and its consolidation, particularly in terms of quality, the additional social benefits associated with a prolonged average length of schooling might not justify sacrificing other public actions, including urgent efforts to be made in order to improve the way labour markets work and the integration of young people.

Indeed, in this respect, there are already considerable integration difficulties for young post-primary leavers, especially those coming out of upper secondary and tertiary education, even if it situations greatly vary from one country to another. The limited data available on vocational and technical education show very varied situations from one country to another, in terms of integration and a need for careful steering of this sub-sector, some forms of which seems more effective than others. The proven cases of quantitative imbalance certainly go along with a qualitative one, which cannot be examined in more detail due to absence of data. Many observers criticise the curricula in force in secondary education, which grants little room for scientific and technological subjects due to lack of resources ; the same situation prevails in tertiary education, where many courses of study train a high number of students experiencing problems of integration on a wide scale.

The relative inappropriateness of post-primary education in terms of content, quality and flow is to be compared with the results of analysis exploring the impact of investment in the different levels of education in terms of growth. Very clearly, growth in low-income countries depends firstly upon the efforts put in towards primary education, and even to lower secondary, but it is not directly affected by the other levels of education. For these countries, which are amongst the poorest, it is urgent to reform post-primary education, which is questionable in its content and does not enable the vast majority of young leavers to be rapidly integrated; this question goes far beyond the issue of the intake of future primary school leavers. The reform must take into account the overall sector simultaneously, enable achievement of quality universal primary education, ensure the availability of a wide vocational training sector fulfilling the need to develop low value-added labour markets, and above all, give a new meaning to secondary and tertiary education, to be undoubtedly of more limited size, but based on international standards of governance.

The variety of country situations in terms of employment and growth, following on from that observed previously in terms of structure and dynamics of post-primary education (cf. chapter 3), provides justification for distinctly country-specific sector reforms, subject first of all to careful analysis of the leeway available in each country in terms of financing, as set out in chapter 631³¹.

31 Detailed analysis is ongoing under the aegis of the AFD and should be presented at the next ADEA biennial, focusing on post-primary education in 2008. On the basis of simulations inspired by national financing models concerning all education sub-sectors, the study should specify, for each of the 33 countries, the global leeway, in terms of financing, to allow for a new sector policy and, through country comparisons, identify benchmarks able to direct national policies towards the most efficient organization and regulation choices.