Education and Economic Performance in Sub Sahara Africa

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In Sub Sahara Africa, where the process of economic growth is almost enigmatic, schooling is being considered, in most parts of the region, as a factor that may help resolve the mystery. This paper aims at examining the degree of growth effect of schooling in this region. Following the endogenous growth model developed by Lucas (1988) that considers human capital as one factor of production and schooling as means of human capital accumulation, two results of schooling are explicitly stated: accumulation of privately owned and publically owned human capital. By developing a growth estimating equation containing these two types of schooling results from the model and confronting the equation with empirical data from Sub Sahara Africa, the hypothesis that schooling has got growth effect is tested. The analytic result suggests that in the region, during the covered period of study, only part of schooling that leads to accumulation of communally owned human capital is associated with per capita income growth.

I. Introduction

It has been increasingly recognized that human capital, which may accumulate through schooling, plays an important role in either economic growth or in social development. In deed, this type of capital is not accumulated by schooling alone, rather other social activities and actions can contribute to the accumulation process. According to Fogel (1994), as refereed in Pritchett (1996), for example, in addition to the general education (schooling and training), better health, physical strength, nutrition and occupational trainings, etc. contribute to the level of accumulated human capital. Considering the effect of schooling on human capital and the role of human capital in economic growth, most often, it is observed that the effect of schooling to be extended to economic growth. This is conspicuously seen in endogenous growth models, especially in Lucas (1988), one of the theoretical works that pressed growth models forward after neoclassical growth model. It considers schooling as a means of human capital accumulation and treats human capital as a factor of production besides labor and physical capital. The conventional wisdom in this line is that improvement in the educational attainments of the labor force has positive impact on productivity that leads to better economic performance at aggregate level.

This paper attempts to examine whether such extension - schooling promotes growth- can be supported by empirical evidences in Sub Sahara Africa (SSA) economies. The need for empirical evidence may arise from two main points of perceptions. The first one is the issue of unemployment and the second one is the issue of nature of schooling itself, which can be spelt out as follows. Regarding the first point, at micro level a labour supplier may be equipped with

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reasonably sufficient level of knowledge necessary for improvement of productivity. But that will influence production level only if the factor is employed. If there is serious unemployment prevailing in the economy, it may act as a barrier to the indicated link. In some economies, policy makers attempt to reduce excessive unemployment by wage employment of educated labour. However, such measures are also associated with suppressed labour productivity. Gelb, Knight and Sabot (1991), for example, show that in many developing countries the public sector has often a large share of the 'surplus' educated labour through wage employment and this reduces productivity.

The counter argument to this point may be the skill obtained through schooling may lead to creating job rather than seeking for the one already created. This view can hold true in advanced economies with abundant physical capital, but may face challenge in the case of poor economies with meager physical capital. In either of the cases, the judgment has to be left to the empirics. Regarding the second point, in the case of Lucas (1988) model, we find two separate results of schooling: the privately owned human capital and communally owned human capital. When one argues that schooling has got favorable growth effect, certainly it includes the effects of these two types of human capital. However, the question to be asked is whether both types of capital have got equivalent marginal effect on growth or not. If that is not the case, and if the more effective part is the one that is less emphasized, and if the less effective one is the one that is more emphasized, then the possibility that the overall effect of schooling on growth is suppressed is very high. This again, can act as a brake to the schooling-growth relation, while the relation is there. Thus, in examining the schooling-growth relation estimation, general estimation of marginal effects of schooling on growth may be misleading unless some qualifying analysis is made. Whether there is difference in effectiveness of the two types of human capital or not, as well as, whether in actual cases there is schooling-growth relation is there or not, has to be examined in the light of empirical analysis.

II. An Insight of Schooling-Growth Relation

Growth economics basically attempts to answer central questions like what factors determine growth of an economy, whether economic growth be sustained in the long run, and whether government intervention is necessary or not, and if necessary what kinds of policies can governments use to accelerate advances in long run economic growth.

As already stated, endogenous growth model suggests that growth can be influenced by rate of schooling. However, whether the implied effect of schooling on growth is universally and equally

applicable is a subject of question. Because, on the one hand, the explicit equation of the models suggests that schooling drives total factor productivity (or Solow Residual) and, on the other hand, such implication seems incompatible with empirical growth process observed in different regions of the world. For example, ever since the 1960s productivity slowdown, which is basically observed in diminishing of TFP growth has been observed in both advanced and developing countries. In this circumstance, the model may describe the slowdown as a result of diminishing rate in schooling, which is very unlikely. At the extreme, in African and some Latin American economies one may frequently observe negative TFP, which may mean according to the model, the schooling rate has adverse effect on growth. Here, too, the implication is hardly acceptable.

In sober fact, the effects of schooling on social development is incontrovertible; however, due to the above mentioned conflicting points and some other issues[1] the schooling-growth-relation seems somewhat unsettled case. At the extreme, some economists are asking whether the theoretical insights of the model have succeeded in providing a better guide to explaining actual growth experience (specially TFP) than the neoclassical model. Pack (1994), for example, considers the success to be doubtful. Griliches (1994) also notes the inadequacy of understanding of the mechanisms that produce growth. Solow (1994) questions the adequacy of the model in explaining the growth process in economies with poor information.

On the other hand, a look at empirical studies on schooling growth relation reveals the fact that there are as much evidences supporting the argument as the ones refuting it. For example, Schultz (1981) argues based on empirical evidences, that investment in education that results in human capital accumulation is a critical element in economic growth. In the same line, World Bank (1993), states that among all, the expansion of primary education has been found to be the major contributor to the economic growth rate of the newly industrialized countries of East Asia. Similarly, the survey conducted by Baro (1991) on 98 countries indicated that there is significantly strong relationship between schooling enrolments and economic growth rates. Tilak (1986) also reached similar conclusion in his schooling-growth study made on Pakistan and South Korea.

Other empirical research works has qualified this argument rather than accepting it as it is. They argue that reaping returns from schooling investments requires that the scope for productive learning be expanded through either technical innovation (Burnett and Patrinos, 1997) or changes in markets and political regimes (Rosenzweig, 1995). Moreover, Burnett and Patrinos (1997)

[1] For example, what we consider in the production function is human capital, but what we are talking about is schooling, what do we know if the relation between schooling and human capital accumulation is poor?

underlined that returns to schooling are made possible through complementary investments. Others tried to qualify the argument from the perspectives of quality of education, sectoral shifts and exogenous technological change; for instance, Jamson and Lau (1982) find that the output of farmers is higher by only 2 % for each additional year of schooling if other inputs are held constant. Nelson and Phelps, (1966) and Schultz (1975) argue that in a technologically stagnant agricultural environment, the production gains from education would be zero, as even the least educated could reach the efficient allocation of factors and only when new technologies and inputs are available does education pays off. Rosenzweig and Foster (1995), as referred in Pritchett (1996), find that the returns to schooling to farmers were very low where technological progress increased the returns to schooling.

At the extreme, we find research results that argue the contrary. In this line Prechett (1996) started his study by asking 'Where has all the Education Gone?' and concluded it by arguing there is no support at all for the proposition that more rapid rates of growth of education capital produce greater output. Murphy, Schliefer and Vishny (1991) consider the divergence of private and social rates of return as a possibility for the apparent negative effect of education on aggregate rates of growth. On studying schooling and wages (one form of income) Azariadis and Drazen (1990) concluded wage increments for individuals are falling (or at least not rising) as a function of the level of schooling. Judson (1993), as referred in Pritchett (1996), work has come up with somewhat reconciliatory position. It argues that primary education had a positive effect while secondary and tertiary education had no significant impact at all, implying the need that schooling –growth relation has to be confined to primary education. World Bank (1994), sharing this reconciliatory position, somewhat differently, states that the positive impact of schooling is conditional, not absolute; it states 'Education at all level increases growth. Growth requires not only investment in human capital but also investment in physical capital; both types of investment contribute more to output growth in open, competitive economies that are in macroeconomic balance.'

What can we deduce for Sub Sahara Africa from such numerous and yet various research results? In deed, if the aim of schooling is confined to social development that need no further question as education by itself is part of the development. But as to growth, we need some more empirical evidence either to accept or not to accept the schooling-growth relation. This paper aims at filling, partly, this gap. By considering the two effects of schooling explicitly as the model suggests, and by further splitting privately owned human capital into three, according to the schooling levels that generates them, it tries to examine questions like whether schooling is associated to growth in

general, or not, what type of human capital is more associated, and what level of schooling is more associated to growth in the region. To this effect, the next section attempts to develop a framework from Lucas model, which helps us get separate effects of results of schooling. The last two sections deal with empirical analysis and conclusion.

III. The Framework:

Some growth models specify an implicit production function of the type $Y = f(L, K, H)$. Lucas (1988) specify this function explicitly as

$$Y = AK^{\beta}\left[uhN\right]^{1-\beta} h_a^{\gamma} \text{ K K K K K K K K K K K K K K K K K K } [1],$$

where Y, K, u, h, N, h_a are net out put, capital stock, time devoted to production, individual human capita, number of persons and external effects of human capital respectively, and all are functions of time. The last variable is part of the capital that all benefit from it.

Since the individual human capital is expected to vary across the labour and an external effect of it is common to all, it is possible to think that the external effect is absorbed in each labour equivalently, which improves marginal products of labour commonly. Moreover, as the term labour corresponds to the time devoted to production it is possible to set $L = u.N$. On this ground, we can rewrite [1] as

$$Y = AK^{\beta} L^{1-\beta} h_a^{\gamma} h^{1-\beta} \text{ K K K K K K K K K K K K K K K K K } [2]$$

From [2] it is clear that the model predicts that Solow's Residual is derived by results of schooling i.e. human capital. Next let us define a parameter α the parameter that measures the ratio of growth rate of external human capital to that of labour (growth of external human capital per unit of labour growth) as

$$\frac{dh_a}{h_a} \div \frac{dL}{L} \equiv \alpha \text{ K K K K K K K K K K K K K K K K K K K K K } [3].$$

That is, if for the economy external human capital growth rate tend to surpass labour growth the parameter takes a value greater than unity, and if on the other hand, labour growth tend to surpass external human capital accumulation, the parameter assumes a value less than unity. Similarly, if the external human capital and labour grow at the same pace, then the parameter takes a value equal to unity. Additionally, if there is no external human capital accumulation the parameter assumes no value. By rewriting [3] as $\frac{dh_a}{h_a} = \alpha \frac{dL}{L}$ and taking indefinite integral of both sides, we can get

$$h_a = CL^{\alpha} \text{ K K K K K K K K K K K K K K K K K K } [4].$$

where C is a constant. Substituting [4] in [2], we get

$$Y = A' K^{\beta} L^{1-\beta} L^{\gamma\alpha} h^{1-\beta} = A' K^{\beta} L^{1+\beta+\gamma\alpha} h^{1-\beta}$$

where A' some constant. The corresponding net output growth estimating equation from this production function will be

$$\frac{dY}{Y} = \beta_1 \frac{dK}{K} + \left((1-\beta_1)+\gamma\alpha\right)\frac{dL}{L} + (1-\beta_1)\frac{dh}{h} \text{ K K K K K K K K K K K K K K } [5]$$

By rewriting [5] in such a way that we become informed the process of income per capita growth (denoted by $\frac{dy}{y}$), we get

$$\frac{dy}{y} = \frac{dY}{Y} - \frac{dL}{L} = \beta_1 \frac{dK}{K} + (\gamma\alpha - \beta)\frac{dL}{L} + (1-\beta_1)\frac{dh}{h}$$

or

$$\frac{dy}{y} = \beta_1 \frac{dK}{K} + (\gamma\alpha - \beta_1)\frac{dL}{L} + (1-\beta_1)\frac{dh}{h} \text{ K K K K K K K K K K K K K K } [6]$$

In [5], the coefficient of labour growth measures the share of total contribution of labour from the aggregate net output. The contribution being determined by the marginal effect of communally owned human capital, as well as, it relative pace of accumulation.

On the other hand, [6] informs us that the possibility of adverse effect of labour growth on per capita income. That is if the relative pace of accumulation of communally owned human capital and its marginal effects, i.e. γ and α, are so small such that $(\gamma\alpha - \beta) < 0$ certainly we expect negative coefficient for labour growth, that suggests labour growth to have adverse effect on per capita income growth. By the same hand should the economy managed to have large sizes of γ and α, such that $(\gamma\alpha - \beta) > 0$ growth in labour will have favourable effect on per capita income growth. Thus, in this regard, what matters is not simply schooling rate but the pace and marginal effects of externality accumulated by schooling. Moreover, regarding privately owned human capital, the equation informs us the fact that the growth effect of this capital depends on marginal productivity of physical capital. This is the immediate consequence of intertemporally utility maximization of economic agents. They tend to invest their resources to the one that gives better return or marginal effect.

IV. Empirical Results

In estimating [6], we need data on growth of income per capita, labour, physical capital and internal human capital. Regarding the first two, the data problem is somewhat simple, as the data series for the variables are available on different national and international statistical publications. But regarding the other two variables, it may not be as such straightforward. Concerning physical capital, the stock was estimated by taking 10% annual depreciation of capital formation and by

considering the fact that current stock of physical capital is the result of the economies present and past capital formations. Accordingly, the current stock of physical capital was estimated as $K(t)=\sum_{i=0}^{10} I_{t-i}(1-\delta \cdot i)$ where δ is the annual rate of depreciation. Estimation of human capital variable is somewhat more indirect as direct measuring of the variable is very difficult. On this problem, Lucas (1988) states that human capital is an unobservable magnitude which we cannot have a measurement for it in empirical analysis, unless we use some proxies. Thus for this exercise, we choose school enrolment[2] as a proxy for Privately owned human capital accumulation. In deed, it is possible to find some studies using other proxies. One may find primary, secondary and tertiary enrolment data separately. These separate enrolment data are useful in testing the hypothesis of differential effectiveness of schooling levels. However, aggregate of this data enables us to make general judgement on the schooling-growth relation. To this effect, a weighted average of the three sets primary enrolment, secondary enrolment and tertiary enrolment, were taken; the weights being 0.19, 0.32 and 0.49 respectively following [Brundenius, 2000]. World Bank (2001)- was considered as preferable data set to permit comparisons of results, as a number of writers use this same source. The data set contains total labour force and gross domestic product per capita for 40 years (1960 – 1999) for a number of countries. There are some missing years and data points for enrolment data especially for the years after 1995. Accordingly the years after 1995 were excluded. Like wise the capital estimation procedure given above excludes the data in 1960s as the estimation of capital stock before 1970s require data on capital formation for the years before 1960, which is not actually there. Furthermore, from the SSA economies 12 countries[3] were selected on the ground of data completeness. Finally, from this data set, an average of five years were taken as a period to reduce the risk of serial correlation in the panel.

In the panel data analysis, [6] was specified as One-Way and Two-Way error component model. The better specification was selected on the ground of F-statistics. This statistics tests the significance of any time specific effects that is not included in One-Way regression specification. Moreover, under each specification, we have three estimators: restricted or OLS, the Fixed effect and Random Effect or GLS estimators. From these estimators, again the superior estimator was chosen based on appropriate statistical test, namely Lagaragian Multiplier and Hausman tests. The results are given in table -1 and table-2

[2] Other studies, for example Pritchett (1996), use the number of years of schooling for the same purpose.

[3] It includes Benin, Burkina Faso, Burundi, Cameroon, Congo, Rep., Cote d'Ivoire, Ghana, Kenya, Mauritius, Niger, Nigeria, Senegal, South Africa, Togo

Table –1 One-Way Error Component Regression Model

Estimators	Parameters	Estimate of the parameter	St. error of the parameter	T-ratio	p-value
Restricted Model OLS (RM)	Constant	-0.1901	1.3154	-0.1445	0.8855
	β	0.2869	0.0390	7.3614	0.0000
	$(\gamma\alpha - \beta)$	-0.1339	0.4812	-0.2783	0.7817
	$1-\beta$	0.0187	0.0279	0.6706	0.5048
Fixed Effect Model (FM)	Constant				
	β	0.2767	0.0459	6.0284	0.0000
	$(\gamma\alpha - \beta)$	-0.8959	0.4915	-1.8227	0.0728
	$1-\beta$	-0.0198	0.0264	-0.7488	0.4566
Random Effect Model (RM)	Constant	0.2933	1.4521	0.2020	0.8399
	β	0.2836	0.0379	7.4818	0.0000
	$(\gamma\alpha - \beta)$	-0.2961	0.5312	-0.5575	0.5772
	$1-\beta$	0.0118	0.0315	0.3746	0.7080
Lagrange Multiplier test of RM vs. FE/RE $\chi^2_{(2)} = \mathbf{0.67}$, $p = 0.4119$					
Hausman test of FE vs. RE; $\chi^2_{(3)} = 0.\mathbf{16}$, $p = 0.\mathbf{9926}$					

Table –2 – Two-Way Error Component Regression Model

Estimators	Parameters	Estimate of the parameter	St. error of the parameter	T-ratio	p-value
Fixed Effect Model (FM)	Constant	3.3067	2.2097	1.4964	0.1393
	β	0.3142	0.0466	6.7419	0.0000
	$(\gamma\alpha - \beta)$	-1.3232	0.8160	-1.6215	0.1097
	$(1-\beta)$	-0.0498	0.0528	-0.9428	0.3492
Random Effect Model (RM)	Constant	1.0201	1.7514	0.5824	0.5603
	β	0.2899	0.0413	7.0258	0.0000
	$(\gamma\alpha - \beta)$	-0.5475	0.6234	-0.8783	0.3798
	$1-\beta$	-0.0011	0.0381	-0.0278	0.9778
F-test of One-Way vs. Two-Way $F[\mathbf{4, 49}] = 1.344$, $p = 0.\mathbf{2671}$					
Lagrange Multiplier test of RM vs. FE/RE $\chi^2_{(2)} = \mathbf{0.91}$, $p = 0.6354$					
Hausman test of FE vs. RE; $\chi^2_{(3)} = 2.\mathbf{91}$, $p = 0.\mathbf{4055}$					

Results at the bottom of Table –2 informs us that One-Way error component regression model is a better specification than Two-Way specification as the statistics accepts the null hypothesis of insignificance of time specific effects, $(p = \mathbf{0.2671})$. The next step will be selecting appropriate estimator from the three alternatives within One-Way specification. To start with, first comparison between OLS estimator, on the one hand, and fixed effect or random effect

estimator, on the other hand, is conducted. The suitable statistics for this purpose is Lagaragian multiplier (LM). It tests the hypothesis of absence of country specific effects against their presence. With $N = 12,\ T = 5$ *and* $k = 4,$ LM test for significance of country specific effects yields a χ^2-value of 0.67 $(p = 0.4119)$. This is distributed as $\chi^2_{(2)}$ under the null hypothesis of zero country specific effects. The null is accepted, implying that OLS is superior to fixed effect or random effect estimators. In short, for our purpose here, the estimates obtained by One-Way specification and OLS estimator is preferable. From table-1 we observe that the coefficient of growth of privately owned human capital $(1-\beta)$ is positive but insignificant $(p = 0.5048)$, suggesting that in the region, during the covered period of the study, the view that accumulation of privately owned human capital acts as a driving force of growth fails to get supporting empirical evidence.

On the other hand, table-1 reports that the coefficient of labour growth is insignificant at standard levels $(p = 0.781678)$. The meaning of this insignificance can be more understandable from the settings of [6], as it is the difference of the parameters, $(\gamma\alpha - \beta_1)$. From the table we find that the coefficient of capital is strongly significant i.e. the hypothesis $(\beta_1 = 0)$is strongly rejected. Using this information, and the fact that the hypothesis of $(\gamma\alpha - \beta_1) = 0$ is accepted, we can deduce that $(\gamma\alpha)$ is a non-zero parameter. Alternatively, we can rewrite $(\gamma\alpha - \beta_1)$ as $(\gamma\alpha - 1 + 1 - \beta_1)$ without changing the value, which in turn equals $((\gamma\alpha - 1) + (1 - \beta_1))$ The test accepts the null hypothesis that $(1 - \beta_1) = 0$ and $(\gamma\alpha - \beta_1) = 0$. By using the two test results together, it is understandable that parameter $(\gamma\alpha)$ is non-zero parameter. That is the accumulation of communally owned human capital has got growth effect but it is drained by adverse labour growth[4]. Thus it is possible to think that even if the effect of schooling, through privately owned human capital, is not significant, its effect through communally owned human capital is not insignificant in the region.

In prospect, this has got special message. If the region intends to use education as one of the driving forces of growth, the education system has to focus on the types that generate externality than arbitrary choice between the two types.

V. Concluding Remarks.

[4] The argument can be clearer from the following equation $\frac{dy}{y} = \beta\frac{dK}{K} + \gamma\alpha\frac{dL}{L} - \beta\frac{dL}{L} + (1-\beta_1)\frac{dh}{h}$. If β is non-zero and $\gamma\alpha$ is non-zero, but the resultant takes zero value, then the favourable effect of $\gamma\alpha\frac{dL}{L}$ has been drained out by unfavourable effect of $\beta\frac{dL}{L}$.

The paper has tried to examine the view that schooling promotes economic growth in Sub Sahara African context, and arrived at conclusion that schooling types that leads to accumulation of communally owned human capital is associated with growth of per capita income. However, the study finds no supporting evidence for the association of the schooling type that leads to privately owned human capital and growth of per capita.

The results of this study needs careful understanding regarding the necessity of schooling, particularly, the schooling type that leads to accumulation of privately owned human capital. Certainly, the importance of schooling in these areas was found to be insignificant, when viewed under the spectacle of economic growth. But this does not mean, by no means, that this type of schooling is totally unimportant. They may have strong importance in other aspects of social development.

For the region, the central message to be driven from the study is that should the objective of schooling be the attainment of some level of economic growth, making more emphasis on the schooling type that generates communally owned human capital can serve the purpose very well.

References

Azariadis and Drazen (1990) 'Threshold Externalities in Economic Development' *Quarterly Journal of economics*, 105(2) pp. 501 –526

Barro, R. (1991) 'Economic Growth in a Cross-section of Countries', *Quarterly Journal of Economics,* 106(1), pp407-443

Brundenius, C. (2000) 'The Role of Human Capital in Cuban Economic Development, 1959-1999', *Centre for Development Research Working Paper* 00.8, Denmark.

Burnett, N. and H. A. Patrinos (1997) 'Education and the Changing World Economy: the imperative of Reform', *Prospects Quarterly Review of Comparative Education*, Vol. XXVII, No.2, International Bureau of Education, UNESCO, Paris

Gelb, A., J.K. Knight, and Richard H. Sabot (1991), 'Public Sector Employment, Rent Seeking, and economic Growth', *Economic Journal*, 101, pp.1186-1199.

Griliches, Z. (1994) 'Productivity, R&D and Data Constraint', *American Economic Review*, Vol.84, pp.1-23.

Jamson,D. and L. Lau (1982) F*armer Education and Farm Efficiency*, Johns Hopkins, Baltimore

Lucas, R.E. Jr. (1988) On the Mechanics of Economic Development, *Journal of Monetary Economics,* Vol.22, No.1, pp.3-42.

Murphy, Kevin M., Andrei Shleifer and Robert Vishny (1991) 'The Allocation of Talent: Implications for Growth', *Quarterly Journal of Economics*, 106(2) pp. 503-530.

Nelson, Richard R., and E. S. Phelps, (1966) ' Investment in Humans, Technological Diffusion, and economic Growth', *American Economic Review,* vol..56, 69-75.

Pack, H. (1994) 'Endogenous Growth Theory: Intellectual Appeal and Empirical Short Comings', *Journal of Economic Perspectives,* Vol. 8. Pp.55-72.

Pritchett, L (1996) 'Where has all the Education Gone?' *Policy Research Working Paper*, Poverty and Human Resource Division, World Bank

Rosenzweig, M.R. (1995) 'Why are there Returns to Schooling?' *American Economic Review*, vol. 85, No. 2, PP. 153-58.

Schultz, T. (1975) ' 'The Value of the Ability to Deal with Disequilibria' *Journal of Economic Literature,* Vol. 13, pp. 872-6.

Schultz, T. (1981) *'Investing in People: The Economics of Population Quality',* University of California Press

Solow, R. (1997) *'Learning From "learning By Doing" Lessons for Economic Growth'*, Stanford, CA: Stanford University Press

Solow, R.M. (1994) 'Perspectives on Growth Theory', *Journal of Economic Perspectives*, Vol.8, pp. 45-54.

Tilak, J.B. (1986) 'Education and Its Relation to Economic Growth', *World Bank Discussion Paper* 46, Washington D.C.

World Bank (1993) *'The East Asian Miracle: Economic Growth and Public Policy'*, Oxford University Press for the World Bank

_____ (1994) *'Priorities and Strategies for Education: A World Bank Sector Review*', Education and Social Policy Department

_____ (2001) *'World Development Indicator*', CD-Version