

Putting Education to Work in Egypt

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INTRODUCTION

Across countries, education leads to growth, and education of the poor ensures equitable growth and poverty reduction. Empirical work demonstrates that education broadly shared is critical to equitable growth, and that equitable growth is more rapid and more sustainable than growth built on accumulation and productivity gains that are confined to limited sectors and population groups. Among developing countries, Egypt appears to be in a good position to benefit from equitable education-led growth. It has managed throughout the postwar period to make substantial public investments in education, with healthy emphasis on full and equitable access. The country's relatively equal distribution of income appears to reflect and reinforce a public policy, extending back to the years of Nasser's leadership, emphasizing socialist principles of shared growth built on full access to education and other social programs.

But there is something wrong. The Egyptian economy has not and is not realizing any quantifiable economic return to its substantial public investments in education, nor to what appear to be substantial private investments. Moreover, there is now some risk, because public spending on education is poorly allocated and ineffective, that the poor and the middle class will fall behind in education, setting the stage for a future society that is more segmented and with higher income inequality. There is, in other words, a sense in which education has simply not worked, or has simply not been put to work in Egypt.

In this paper, we explore the reasons behind Egypt's anomalously low return to its education investments, and suggest what steps would help ensure that over the next decade and beyond, education in Egypt delivers, that is, that it is an instrument not only of sensible social policy but of productivity-based increases in economic growth and of a more equitable sharing of that productive growth. In Section 1 we summarize evidence from cross-country studies of education's economic role in enhancing growth and reducing inequality. We emphasize in particular the benefits of education that is itself equitably distributed. Section 2 describes the record of educational advance in Egypt. The record is reasonably good, at least in quantity terms, but the economic rewards have been limited. In Section 3 we discuss problems with the supply of education, and distortions in the market's demand for education, that have limited education's contribution to growth. In Section 4 we set out the implications of our assessment for policy - what is, in effect, required to put education to work in Egypt.

1. EDUCATION: A PRODUCTIVE ASSET

We summarize in this section the economic theory and empirical evidence underlying economists' view of education as an asset, a form of capital the accumulation of which increases an economy's growth potential. We also emphasize new work that links low growth and income inequality to differences across countries in the distribution as well as the average level of education.

More education contributes to growth. In new classical growth models, human capital accumulation is as critical a concept to the growth process as physical capital was to earlier models. In the new models, growth is stimulated by increasing savings and investment in education, a critical input to human capital. The more recent endogenous growth models attribute an even stronger role to human capital. Sustainable growth in these models is a result, in part, of positive externalities generated by education; new ideas and new technologies are critical to high sustained growth, and in turn rely on high levels of human capital.

It is obvious that the educational attainment of populations is closely associated with income levels across countries. But of course the association does not necessarily indicate causality: educational attainment could be the result, as much as the cause, of income growth and high income levels (in economic terms, a luxury consumer good that is increasingly demanded as income rises). To pin down causality, studies of the determinants of growth in developing countries in the last decade or so have relied on assessment of how the level of education?for example, enrollment rates at the beginning of a period?has affected income growth in subsequent years. These types of studies find a strong and positive effect of educational attainment on growth rates (Barro 1991, Barro and Sala-I-Martin 1995; Levine and Renelt 1992). Barro (1991; see also Appendix Table 1, column 1) shows that the contribution of education is among the most robust findings of the growth regressions, proving to be relatively insensitive to changes in either specification or sample composition.

The findings of these empirical analyses are consistent with human capital theory, namely, that education augments cognitive and other skills, which in turn augment the productivity of labor (Schultz 1961; Becker 1964), as well as with microeconomic evidence that better-educated workers earn higher incomes and, for women in particular, are more effective in household production of children's good health and schooling (Schultz 1988; Strauss and Thomas 1995).

Birdsall, Ross, and Sabot (1995) use the Barro results to assess the magnitude of the contribution of education to rates of economic growth. They report, on the basis of simple simulations, that an increase in a country's primary and secondary school enrollment rates of half a standard deviation above the means of those variables would translate into nearly a 1.5 percentage point increase in the annual per capita growth rate (for example, at the 1960 means, an increase in primary enrollment from 75 to 90 percent, and in secondary enrollment from 22 to 34 percent). The cumulative effect of this annual difference in growth rates over twenty-five years is large. The simulation indicates that a country with primary and secondary school enrollments half a standard deviation above the average in 1960 would have had a GDP per capita 40 percent higher than a country with 1960 enrollments half a standard deviation below the average. Egypt,

for example, whose primary and secondary enrollment rates in 1960 were, respectively, 66 percent and 16 percent, would by these simple calculations have had income per capita about 40 percent higher in 1985.

More equally distributed education contributes to growth. Cross-country analysis of Birdsall and Londoño (1997; see also Appendix Table 2) upholds the finding that education accumulation, along with capital accumulation, is good for growth. Their analysis also suggests that the distribution of education affects growth, controlling for the level of education. The study reports that the degree of inequality in the distribution of education has a strong and robust negative effect on growth (columns 2 and 3). The variable measuring the distribution of education is highly robust; its negative effect operates independently not only of the education level variable but also of the positive effect of trade openness and the negative effect of natural resource endowment.

Moreover, the distribution of education appears to explain much of the widely reported effect of inequality of income on growth (Birdsall, Ross, and Sabot 1995; Alesina and Rodrik 1994; Persson and Tabellini 1994). When asset distribution variables (of land and education) are included, the negative effect of income inequality per se on growth loses statistical significance (columns 2 and 3 versus column 1). Thus, the constraint to growth posed by income inequality apparently reflects differences in a fundamental element of economic structure, namely the access of different groups to productive assets, including land and education.

Education, the great leveler. The correlation between asset accumulation and income concentration is not surprising. Analysis across countries shows that an unequal distribution of assets, especially of education, affects income growth of the poor disproportionately. Appendix Table 2 (columns 4 to 6) shows the results of estimating the effects of the initial distributions of education and land on the growth in income of the poor across time periods. Income growth of the poor is affected positively by overall growth (an elasticity well above one, column 1) and by capital accumulation (columns 2 and 3). Income growth of the poor is negatively affected, however, by the distribution of land and of education. The negative effects on income growth of the poor are twice those of their effects on average income growth (column 2).

Contrasting the divergent performance of Latin America and East Asia illustrates the links among the distribution of education, income inequality, and growth. In Latin America, only a relatively small proportion of the total population has completed secondary or higher education. These relatively few skilled workers earn a substantial wage premium due to their limited supply. Thus a poor distribution of education contributes to differentials in the returns to different levels of education, magnifying the effect of education gaps on income inequality. Londoño and Székely (1997) estimate that the low level of education of Latin American workers and the enormous inequality in educational assets account for the largest portion of the region's excessive income inequality (Londoño and Székely 1997, Appendix Figure 1), more than other contributing factors, such as lower physical capital accumulation, the relative abundance of natural resources, and high concentration of land. The Gini coefficient for Latin America is high, about 0.50 for the region as a whole. That is approximately 15 points above the average for the rest of the world (and well above Egypt's coefficient of .32). The Latin American experience stands in marked contrast to that of East Asia, where education gains ensured a large supply of

skilled workers, eroding any substantial premium they might have earned above the wages of the unskilled (Birdsall, Ross, and Sabot 1995). Driven by the increasing productivity of the initially poor, East Asian countries, which began the postwar period with relatively low asset inequality, were able to grow at high and sustained rates over more than three decades. In contrast, most Latin America countries with greater inequality of assets and presumably fewer opportunities for the poor, grew less (see Figure 5).

Education is the people's asset. Among assets that generate income across the world, education is the most equally distributed, and based on recent trends in most countries, it is the asset that has been increasingly broadly distributed in recent decades. The studies reported above remind us that education is an investment that contributes to growth; and that as with other assets, such as land and physical capital, the distribution of education affects the distribution of income.

None of these results is particularly surprising. The results are consistent with the fundamental intuition that, in the economic lives of people, opportunities matter. The poor, because they have few assets, lack opportunities, and thus are poor. They cannot take advantage of opportunities to be productive. In economies where a substantial portion of the population is without human capital (and thus without a critical productive asset), only a part of the population can exploit the growth process, and average growth will be low.

Moreover, these results of cross-country studies square with our larger intuition of structural shifts in the global marketplace. As the industrial age yields to the information age, the key asset for generating income is no longer capital in the traditional sense, but human capital. Reflecting this transition, income inequality has become more closely related to wage and salary inequality than to inequality of land or capital assets. Wage inequality in most market-driven economies is closely tied to the increasing gap between the earnings of the educated and less educated. Thus, the issue of distributive justice that Marx outlined is likely, in the future, to be drawn on the fault line not between capitalists and workers, but between the more and less educated of the world.

We now turn our discussion to Egypt. How do the facts in Egypt fit with these average effects of education throughout the world? How will changes in Egypt's economy affect the links among education, future income growth, and future income inequality?

2. EDUCATION IN EGYPT: GOOD EFFORT, POOR ECONOMIC RESULTS

We begin by looking at the tremendous advances Egypt has made in expanding education over the last 30 years. Gross enrollment rates for both boys and girls steadily increased at every level of schooling, showing particularly strong performance in basic education in recent years (see Figure 1). Today, 80 percent of school-age students are enrolled in primary school and 68 percent are enrolled in secondary school. Mean years of schooling of the population 10 years and older increased from 1.6 in 1960 to at least 5 in 1996 (see Table 1). Adult literacy increased from 26 percent in 1960 to over 51 percent in 1995. Though female illiteracy is still high (61 percent),

its level heavily reflects the differentials in male and female enrollment two and more decades ago. Since 1980, girls' enrollment rates in secondary as well as primary schools have been increasing rapidly and are now approaching enrollment rates of boys (see Table 2).

In short, though Egypt started the postwar development period behind other countries at its income level in terms of education, it has caught up. Compared to countries of similar per capita GNP in 1990, in the period 1975 to 1990 Egypt increased its mean years of schooling the most (by over 2 years) and showed the most improvement in its distribution of education (see Table 3).

Poor quality of education. But the rapid expansion of access to education has been accomplished at the expense of education quality. Demographic pressures and increasingly strained resources resulted in the physical disrepair of many primary schools, overcrowded classrooms, and poor teacher morale and motivation in the face of low salaries. As a result, despite substantial investment in education (4.6 percent of GNP in 1994, compared to 3.9 percent for the average developing country), learning outcomes have been disappointing. A 1994 UNICEF survey suggests that since the late 1980s basic literacy skills have declined as has the attainment of mathematical skills. Repeater rates are also high, especially for the last year of the schooling level, reflecting that students are not prepared to advance to the next stage. In 1995/1996, 10 percent of girls and 13 percent of boys repeated the last year of primary school (Grade 5), while 20 percent and 25 percent, respectively, repeated the last year of secondary school (Grade 11). Drop-out ratios in primary school are estimated to be as high as 20 to 30 percent.

Unequal distribution of education. As a result, Egypt's constitutional guarantee of free education at all levels has become a false entitlement, especially for the poor: the education available to them has been of such poor quality as to make it of little real economic benefit. The emergence of private tutoring as a supplement necessary for the completion of public education, compounded by rising user charges and the cost of basic school supplies, also means that education is not, for all practical purposes, free in Egypt. (From 1980/81 to 1990/91, education costs for the poor increased by roughly 7 times in urban areas and 10 times in rural areas, compared to 3 and 5 times, respectively, for the middle and higher income.) Using data from 1995-96, Filmer and Pritchett (1998) report that 15 to 19 year olds from the poorest 40 percent of households had completed a median of 7 years of schooling (showing that average attainment is increasing), while the richest 20 percent had completed 11 years.

In short, although greatly improved since the mid-1970s, Egypt's distribution of human capital among the working-age population is worse than that of most countries in East Asia and Latin America, and about equal with the Mid-East and North Africa region, as a whole (see Figure 2). Hence, education's potential as a great leveler has been minimal. Education may still be reinforcing, rather than undermining, the transmission of poverty and low education attainment across generations (see Table 4).

Egypt's unequal distribution of education contrasts with its relatively low measured inequality of land, another critical productive asset (see Figures 3a and 3b,) and with its relatively low income inequality. Of the cross-section of countries in Table 5, Egypt has the second lowest income inequality, the third lowest land inequality, and the highest education inequality. In many

developing countries, there appears to be an inverted U (or Kuznets) curve of education inequality over time, in which the initial spread of education generates an increase in inequality in the overall distribution of education, which is then gradually diminished as the continuing spread of education affects a larger and larger proportion of the population. Table 6 illustrates the gaps across generations in education in Egypt, reflecting this process.

Yet there is nothing predetermined about the process. Indeed, an unequal distribution of education in one generation can be all too easily passed to the next generation, without effective public spending to ensure the children of uneducated parents succeed in school. Evidence from Latin America shows clearly that education policies and programs (as well as depth-of-credit markets and other economy-wide measures of the health-of-market processes) affect the extent to which parents' low education and low income condemns their children to low education (Behrman, Birdsall and Székely 1998). Key factors among Latin American countries in breaking the implied cycle are public spending per school-age child on primary schooling, and the quality of primary schools (measured by teachers' average education). In contrast, high public spending on higher education appears to actually reinforce the cycle: once quality of basic schooling is taken into account, more government spending (mostly on public universities) reinforces the tendency for only the children of the rich and educated to get ahead.

The poor distribution of education in Egypt may reflect in part this bias towards higher education. The share of public spending on education that is allocated to higher education has tended to be high ? more than 30 percent on average, compared to 15 percent on average in East Asia. In 1990, government expenditures on tertiary education per student were estimated to be 50 times greater than that of primary and secondary education.

The challenge facing Egypt is thus how to ensure it follows the precedent of East Asia, where continuing improvement in the distribution of education, combined with demand for skills in the labor market, led to equalizing and poverty-reducing growth. The risk lies in the alternative, less fortunate path of some countries of Latin America, where education inequality has fallen so slowly that it has fed into low, disequalizing growth.

Poor economic results. Egypt has a reasonably good record of expanding access to education. Though distribution of education is still relatively unequal, it has been improving and is not atypical at Egypt's income level and stage of development. However, Egypt has not successfully tapped the productive potential of this asset. The problem is revealed in two forms. First, at the economy wide level: Fergany (1998) examines Egypt's economic performance over time (from 1960 to 1995) and finds no significant link between GDP growth and human capital accumulation (measured by years of schooling). Second, at the level of private returns to schooling among Egypt's workers: returns to different levels of education in Egypt differ from the pattern in most other developing countries, and are surprisingly low to primary education. Like the distortions in an overall image of a circus sideshow mirror, distortions in the private returns to education in Egypt help explain the overall unhappy result. Private returns to primary, secondary and higher education for males (measured as the increase in wages for each year of schooling) are 8.3, 31.7, 62.1 percent, respectively. Compared to other countries (see Table 7), those who are unable to continue past primary school receive astonishingly low returns to the schooling they have. The average completed schooling of working-age adults in Egypt is 5 years;

those with primary schooling or less still constitute the overwhelming bulk of the Egyptian labor force (see Table 8). Their low private returns go a long way toward explaining the limited contribution of education to economy-wide growth in Egypt.

3. EXPLAINING EGYPT'S EDUCATION ANOMALIES

We have argued that education contributes to the accumulation of human capital. By augmenting cognitive and other skills, education makes labor more productive and facilitates innovation and technological progress, bringing higher economic growth. Cross-country analysis indicates that education contributes to growth. Why isn't this process working well in Egypt? Why is Egypt's investment yielding low, and skewed, economic returns?

Three problems explain the low (and skewed) economic returns to public and private investment in education in Egypt. One is on the supply side. As noted above, there are many signs that the quality of schooling provided by the public sector is low in Egypt, and has probably fallen in the last two decades. In fact, this is not that surprising. In many other low and middle-income countries, quality also fell throughout the 1970s and 1980s, due to a combination of the following: increasing size of school-age cohorts (except in East Asia, where earlier declines in fertility meant declines in school-age children in the 1970s); rapid expansion of enrollments to include the children of poorer families who arrived at school with less preparation via home investments in their pre-school skills; and anemic rates of growth (again except in East Asia, but notably in Latin America in the 1980s) that reduced the ability of the public sector to maintain spending per school-age child on education. But the low quality of public primary schooling (characterized by high repetition and drop-out rates) means that those now in the labor force—the great majority of whom relied heavily on public schooling system? have probably not acquired the learning or the skills that the measure "years of schooling" normally reflects. It should therefore be no surprise that the economic "return" to their schooling is not visible, neither in the form of higher private income to them nor in the form of higher economic growth in Egypt. In fact, using 1988 survey data, Fergany (1998) observes that compared to the rise in earnings associated with having less than primary education (1 to 2 years), achieving complete primary or intermediate education yields a lower level of earnings. This could reflect the fact that among those who manage to complete primary school but fail to go on to higher schooling, the underlying distribution of ability, motivation, or entrepreneurial skill is lower than among those who, no doubt from very poor households, never attend primary school or leave primary school before completion).

The two other problems arise on the demand side. We emphasize them here because too often the "problem" of education is seen as a problem with the education system, while distortions in the economic system that affect education are ignored. Indeed, differences across countries in the demand for skills have been neglected in many regression analyses of the determinants of economic growth that test education's contribution. These differences also result in predicted

rates of growth that are too high, especially for countries like Egypt and the Soviet Union, where demand-side problems have reduced education's contribution.

Figure 4 illustrates the link between the demand for skills in the labor market and education's contribution to growth. The horizontal axis measures the magnitude of investment in human capital, as provided, for example, by the average education of the working-age population. The vertical axis measures the rate of return to investment in human capital (schooling) and implicitly, the contribution of investment to growth for a given level of investment in human capital. S and D are the skill supply and demand functions of the typical developing country, say at Egypt's level of income. SE represents the supply function for Egypt, which we have drawn to the right of Egypt's low-income counterpart, to suggest that the supply of skills is relatively plentiful in Egypt given its low income. (In this figure, we are not taking into consideration the possibility that years of education is a poor measure of skills. For instance, the problem of poor school quality mentioned above and the possible mismatch between the skills conveyed by rote learning emphasized in school and the problem-solving skills needed in the labor market are not taken into consideration.) The supply function is also drawn as somewhat more elastic for Egypt than for the typical low-income country, because of Egypt's relatively equal distribution of income. Its relatively equal distribution means that the poorest households have higher absolute income than in similarly poor countries with worse distributions, and even higher absolute income than the poorest in much richer countries. For example, the poorest 40 percent of households in Egypt have higher income per capita than the poorest 40 percent of households in Bolivia, whose per capita income is about the same as Egypt's (in purchasing power terms - see Table 9). These same households also have higher absolute income than in Brazil, which is a much richer country on average. This suggests that poor households in Egypt are less likely to be so constrained by low income that, for example, they need to take children out of school to send them to work, and thus are better able to respond to increases in returns to investments in skills. Table 9 indicates relatively high education attainment by the poorest 40 percent in Egypt, compared to other countries

DE represents the demand function for Egypt. This we have drawn below the demand function of the typical low-income country, to illustrate the likelihood that the demand for skills is relatively weak in the Egyptian economy, that is, that for any given rate of return to skills, skilled workers have been in less demand in Egypt than they would be in the typical low-income country.

What is the result? As shown in Figure 4, despite its supply curve, the low levels of demand for skilled workers in the marketplace in Egypt have meant that educational expansion has not translated into higher productivity and income for educated workers. Instead, educational expansion has induced diminishing returns to private and public investment in education (RE), and lower average returns than in other countries (R). In the long run, low returns could in turn reduce the quantity of skills (education) produced in Egypt compared to elsewhere (QE below Q).

What explains the low (and distorted) demand for skills in Egypt? First, until recently, overall economic policy has not been market-led. Sachs (1996) describes well the set of distortions to the market associated with state-led industrialization: a closed economy, without the efficiency-enhancing discipline that competition in export markets necessitates, and a reliance on government-planned and government led investment and management. For decades, policies to

promote industrial development in Egypt, such as trade protection, large subsidies and protection for the owners of capital, reduced the relative price of capital to labor. In the last few years, the government has succeeded in managing at the macroeconomic level an effective stabilization program. By reducing trade barriers and initiating privatization programs, it has also begun to address the structural problems that have suppressed the demand for labor in the formal sector and made Egypt less than competitive in world markets. It will take both deepening of these reforms and development of new institutions—for example, free trade negotiating capacity and the public infrastructure to support exports—before these changes yield visible results in the labor market.

The second explanation for low labor demand lies in the labor market regime itself. For years, onerous labor regulations have increased the cost of labor and have produced rigidities in the labor market, discouraging local and foreign investment and labor-demanding production. Under the current regime, employers have limited ability to adjust their work force to accommodate fluctuations in demand. Although Egyptian law allows for temporary as well as permanent contracts, temporary contracts become permanent if they are renewed more than once. Permanent contracts, after a three month probationary period, virtually provide lifetime employment security. It is almost impossible to dismiss a worker unless he or she engages in gross misconduct. Economic or efficiency justifications are not permissible grounds for dismissal. Litigation for unjust dismissal can be long and costly as it can be brought before both the labor and civil courts simultaneously. Civil cases have lasted up to 10 years with appeals.

As in many developing countries, there is a mismatch between Egypt's labor market realities and its institutions. Only a small share of workers benefits from codified labor protections. Most workers in the private sector are found in the informal economy — it has been estimated to provide as much as 80 percent of total private sector employment. Workers in the informal economy have none of the employment benefits guaranteed by law: they can be laid off any time, they have no provisions for retirement or disability, and they have no legal recourse in disputes against their employers. This sector is characterized by low skill, low productivity, and low-wage employment. It has borne much of the brunt of Egypt's economic adjustment. Moreover, enforcement of the labor laws is lax and employers frequently circumvent them. So even the small share of private formal sector employees enjoy limited protection. For example, employers frequently get around restrictions on dismissal by asking prospective employees to sign a resignation letter before starting a job, offering an employee an indemnity to resign, or transferring the employee to a similar job in an undesirable location.

In recognition of the deterrent that current labor laws pose to private sector development, a new labor law was recently drafted. Among other reforms, the law would allow multiple fixed term contracts, and would introduce economic and efficiency grounds for the dismissal of employees. Furthermore, under the proposed law employers in economic difficulties may temporarily alter contract provisions, and ask workers to perform tasks other than those for which they were contracted. The law would also allow employers to legally advertise or to use private sector recruitment agencies, in contrast to the current, often ignored, rule requiring employers with more than 10 workers to recruit through government labor offices. The proposed law offers workers clearer benefits, such as a set compensation package for termination and the legal right to strike. Surprisingly, the proposed labor reform has gained union support, probably reflecting

their view that current laws provide limited practical protection. The local business community opposes the reform, apparently fearing its potential costs and the new right to strike.

Another significant distortion in Egypt's labor market is the Employment Guarantee Scheme established in the 1960s. Through this program the government guarantees public-sector employment for all graduates of secondary and post-secondary institutions. Though suspended de facto in 1990, the lingering effects of this policy explain many of the anomalies described above. On the supply side, the promise of employment has fueled demand for secondary and university education, which captured resources from primary education, and ended up lowering the quality of education at all levels. The churning out of graduates fed into an already bloated public sector, which became the employer of last resort for the more educated. However, the public sector could not continue to expand to absorb the glut of secondary-school graduates. On the contrary, government retrenchment led to the shedding of public-sector employment, disproportionately affecting those with higher education, since the government was their main employer. The scarcity of public sector jobs relative to the growing number of graduates led to queuing for government jobs. Although real average public-sector wages declined to below formal private-sector wages, the more educated unemployed continued to queue for coveted positions in the public sector for years (as many as 8), seeking the job security, comfortable benefits, and limited hours these positions offer.

At the same time, these graduates, especially at the secondary education level, have faced limited demand in the private sector. Gillespie (1997) observes that there is a mismatch in the demand and supply of labor skills in the Egyptian economy. The small and informal private sector cannot afford vocational and secondary educational skills; the public sector can no longer absorb them, and the formal private sector is too small and sluggish to generate sufficient demand. Repressed demand for secondary graduates in the private sector is partially accounted for by the public sector, which due to its large share of total employment, transmits its distortions throughout the economy. For example, its non-market wage-setting mechanisms affect the wage structure in the private sector. Assaad (1997) posits that the possibility of secondary graduates receiving public sector employment (with all its benefits) sets an artificially high reservation wage. This artificially increases their labor cost relative to others, diminishing their demand in the private sector.

In short, weak aggregate demand, anti-labor biases, and restrictive labor codes have contributed to overall low labor demand and a large informal sector in which the poorly educated are mainly concentrated. Meanwhile, the inability to absorb the growing supply of graduates with secondary education, exacerbated by a low quality of education, helps keep wages low in the private sector, explaining the unusually low returns to secondary education in Egypt. Inhibited demand in the private sector, and the security and benefits of public sector employment encourage those with secondary education and above to search and wait for a government job, leading to the high unemployment of the better educated. Graduates of secondary education have the highest unemployment rate (32%), compared to less than 1% for illiterates. University graduates have the next highest unemployment rate (19%). Educated women are also disproportionately represented among the unemployed as they appear to face discriminatory barriers in the private sector and have been more willing and able to remain in the queue.

4. POLICY IMPLICATIONS

Deepening market reform. Cross-country regressions remind us that education is an investment that contributes to growth. But like any other asset, it must respond to market signals in order to generate an economic return. The low and skewed economic returns to education in Egypt underscores the need for deepening market reform to tap the power of this asset. Without such reforms, education's potential contribution to growth will be lost.

Market reforms are often held to hurt the poor. In Egypt, the reality is that without market reforms, the poor cannot exploit the one asset, education, which elsewhere has been key to their income growth. As discussed in Section 1, the poor's income is affected disproportionately by the level and distribution of education. When the productivity-enhancing effect of education is exploited in the market, the poor have their first and best chance to share in the growth process.

Labor market reform. Introducing macroeconomic stability is not enough to ensure growth and employment generation. Reforms to rewire incentives are necessary if Egypt's substantial investment in education is to yield improved economic returns and contribute to growth. Highly skewed returns and the coexistence of high wages for higher education with substantial unemployment among that group indicate that policy distortions are preventing the labor market from allocating and using the skills available, and that the skills being produced are not those demanded by the market.

Removing these distortions is a necessary step if Egypt's market is to harness education's potential contribution to growth. A good step in that direction was the suspension of the Employment Guarantee Scheme. It appears that the message that guaranteed public sector jobs no longer await graduates is getting through. Assaad (1997) notes that vocational secondary graduates are increasingly dropping from the queue. Moreover, reform efforts are already underway to introduce flexibility into the labor codes.

The dismantling of policies distorting Egypt's labor market will not provide an immediate fix. They leave behind a legacy of sluggish labor demand in the private sector, a pool of low productivity labor in the informal sector, and an existing stock of human capital that may not match well the changing needs of a market economy. Nonetheless, they are good steps towards rationalizing market signals so that the labor market can act as a clearinghouse for supply and demand of labor, rewarding productivity and encouraging investment in education that can be used. Progress along this line is necessary if education is to be put to work in Egypt. Failure to do so will disproportionately hurt the poor, whose main asset is labor, relegating them to low-productivity, low-wage employment.

Improving education quality. Low and declining quality of public schools is a real disaster for the poor, whose main option for acquiring any asset that generates future income is public education. The fact that in Egypt, most families do enroll their children in school suggests there

is demand for schooling among the poor?but it is demand for effective schooling that would increase labor productivity. The high drop out rates (and the high repetition rates that lead to dropping out) are sad testimony to parents' and children's growing discouragement through the school years as low quality and low achievement produce limited learning and thus, limited expected economic returns.

CONCLUSION: ON EDUCATION, GROWTH AND INEQUALITY

It is heartening to see the progress Egypt has made in expanding education. But expansion of the supply of education alone does not itself generate economic benefits. There must be adequate demand for skills in the market (a function elsewhere of open, export-oriented regimes) and a labor market that works—that is, matching supply and demand. Among the poor, it is hard to sustain demand for education if the return to their education is low because the quality of education is too low to produce skills, or because there is a mismatch between the supply and demand of skills. What this means is that if education is to contribute to growth (and to live up to its potential as the people's asset), the poor need access to education of reasonable quality, and the opportunity to use that education in productive ways in a labor market that is functioning well.

What would success in putting education to work via economic reforms imply for future trends in economic growth and changes in income distribution in Egypt? The likely effects on growth are clear. The experience of other developing countries shows that market reforms generate healthy returns to education and skills, which translate into more sustainable rates of economic growth and thus into higher average income levels.

At the same time, if there is a shortage of persons with adequate education and skills to meet the labor demands of new, more dynamic skill-demanding sectors, that shortage will lead wages for those who do have the necessary education to be bid up, and the resulting wage premium to education will bring growing wage dispersion and increasing overall income inequality. Thus, because the average education level in Egypt is still relatively low, it is possible that as Egypt deepens its market reforms and makes its labor market more flexible, some increase in wage inequality will result, with some deterioration in income distribution over the next decade.

This should not be seen in and of itself a bad thing. As long as growing wage inequality reflects healthy incentives in a more competitive, skill-demanding market place, this effect is likely to be temporary. If education continues to expand rapidly enough, and if all segments of the population are able to benefit from expanding and improving quality of education, then labor and other market reforms will create the incentives for households to invest heavily in education, and in a virtuous circle, the demand for and supply of education will ensure a rapid build-up in the average education level of the labor force and, after an initial period of growing wage dispersion, a gradual diminution of what was a wage premium to the educated few.

Much depends on the speed with which education spreads. The current average education of the working-age population in Egypt is probably now above four years. International experience suggests that until the average level of education reaches about six years, the inequality of education is likely to be rising, as a small but growing group benefits from more education; after the average reaches six years, a kind of turning point is reached, and further education decreases education inequality, and thus reduces the contribution of education inequality to wage inequality.

Figure 5 illustrates the possibilities for Egypt: it may move over the next decade from a position of relatively low growth and relatively low income inequality to the path of Latin America, or of East Asia. In Latin America, education spread slowly from a low base, given average income. The result has been increasing wage inequality in the 1990s, accompanying the market reforms and the expansion of new skill-demanding industries. In contrast, in East Asia, the rapid spread of education from the 1960s on has kept wage premia for the highly educated low, encouraging higher average income and less income inequality over the last three decades.

The challenge for Egypt is thus to ensure—through such economic reforms as the greater opening of the economy, the reduction of the state role in production, and the reform of labor market regulations that discourage employment—that the resulting more competitive and skill-demanding market place can call upon an increasing supply of Egyptians with adequate education and the accompanying readiness to acquire new skills. This in the end is what will bring both economic growth and a just sharing of that growth.

Notes

1. Appendix Table 2 shows the results of estimating a traditional growth equation across countries, using the best recently available data on the distribution of income (Deininger and Squire 1996). For these estimates, the countries were selected with Lorenz curves available for two periods of time separated by at least five years, with income estimates per capita in international purchasing power prices, and with information on physical capital investment, the education of the labor force (which were used to construct the measure of human capital distribution), land distribution and trade indicators. Egypt was omitted from this regression because data on distribution of income across quintiles was lacking for the relevant years.
2. In these regressions, the standard deviation of years of education of adults aged 25 years and older is used as the measure of the distribution of education. The level of education is entered as a separate variable.
3. See, for example, Székely and Hilgert 1999.
4. In Table 3, the measure of the distribution of education is the coefficient of variation, the mean-adjusted standard deviation of schooling. Years of education are estimated using Barro-Lee's frequency distribution for the population 25 years and over within the following categories of education: no schooling, incomplete primary schooling, completed primary schooling, incomplete secondary schooling, completed secondary schooling, incomplete higher schooling,

and completed higher schooling. A decrease in the coefficient of variation indicates an improvement in the distribution of education.

5. In 1992, roughly 40% of the school buildings required maintenance or were partially unfit for use. Mean class density increased from 39.9 students to 45.1 in 1990/1991 over ten years, compared to 33 for the developing countries on average (UNESCWA 1995).

6. "The Arab Republic of Egypt, Education Enhancement Program," Staff Appraisal Report No. 15750-EGT, The World Bank (October 21, 1996) pp. 2-4.

7. A huge market for private tutoring to supplement public education has emerged. It is estimated that Egyptian households spend LE 7 billion per year on private tutoring, an amount comparable to total public education expenditures. Tutoring costs per child are estimated to be about 6% of average household expenditure. About two-thirds of preparatory students indicate they take private lessons to supplement classroom teaching (*ibid.*, p. 3).

8. UNESCWA 1995, p. 83.

9. In figures 3a and 3b, years of schooling are estimated using Barro-Lee's frequency distribution for the population 25 years and over within the following categories of education: no schooling, incomplete primary schooling, completed primary schooling, incomplete secondary schooling, completed secondary schooling, incomplete higher schooling, and completed higher schooling. See also Table 8.

10. UNESCWA 1995, p. 81.

11. Fergany emphasizes that there are data and other problems which may explain his finding of no significant link between GDP growth and human capital accumulation.

12. Gillespie 1997, p.4.

13. Fergany 1998, p. 53.

14. Gillespie 1997, p. 37.

15. Assaad 1993.

16. "Egypt Regulations: After Long Delay, New Labour Law Imminent," The Economist Intelligence Unit Newswire, October 14, 1998.

17. While workers with secondary education constitute one-fourth of the labor force, they represent 60% of public sector employment (Gillespie 1997, p. 10). See Table 10.

18. By law university graduates, and secondary school and technical institute graduates needed to wait at least 5 and 6 years, respectively, after graduation to apply to the Ministry of Manpower for a government job.

19. Gillespie 1997, p. 15.
20. In 1995, the government and public enterprise accounted for one-third of total employment.
21. Assaad 1997.
22. Fergany 1998, p. 27.
23. Female secondary school graduates appear to face strong discriminatory barriers in the private sector. Although for this level of education, public sector wages in 1988 were lower than in the private sector for men, they were substantially higher for women. Females with vocational secondary education face public-private wage differentials of 40% to 60%. As the education level increases for both males and females alike, there is greater parity in wages between the sectors (Assaad 1997).
24. Gillespie 1997, p. 12.
25. Barro and Lee's (1993) estimate is 3.6 for 1990, up from 1.3 in 1975.
26. Londoño 1996.
27. See, for example, Lora and Marquez 1997.
28. Birdsall, Ross, and Sabot 1995.

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