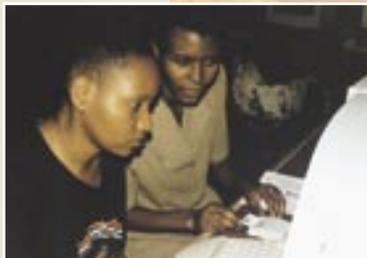




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University-Level
Education for Women
in the Developing
World: Questions
for Public Policy

University-Level Education for Women in the Developing World: Questions for Public Policy

by Barbara Herz

ABOUT THE AUTHOR

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Editor's Note: *In the developed nations of the West, it has become a widely held belief that providing the same opportunities—and supports—for women to participate in higher education as men benefits not only individuals and their families but also promotes economic and social development. Indeed, research has documented clear benefits that result for society when women are well educated. In the developing nations of Africa, there is a growing understanding that women, along with their male counterparts, also have an important role to play in helping their countries become full and active participants in the global community, including the worldwide economic marketplace. “Africa is overflowing with women leaders,” notes Soukeyna Ndiaye Ba, president of Women’s Development Enterprise in Africa, a Dakar-based nongovernmental organization. “They lack only the training and the means to bloom.” However, despite the growing belief that society can reap measurable gains when a nation’s women are educated, there has been little documentation or research that articulates how individuals, communities and society are benefited when women become doctors, lawyers, professors and senior civil servants. Although some significant research has made the case for basic education, we believe it is time to create the scholarship around higher education and its implications for women and society.*

It is unlikely though, that women will be able to contribute fully to national development without finding ways to increase the cohort of female students in Africa who move from the secondary grades (where increased female enrollment is a welcome trend) to tertiary education, a number that, in the aggregate, has hardly increased over the past 20 years. What are the obstacles? Along with long-standing cultural barriers, there is certainly the cost factor; as the burden of paying for the full cost of university-level education for men or women would be prohibitive for the majority of African families.

The lack of research and data to make the case that higher education for women is crucial to improvement in the lives of all people—men, women and children—and to building a brighter future for their countries must be addressed. Carnegie Corporation of New York commissioned this Challenge Paper to explore these issues and to encourage an international dialogue about ways to increase access to higher education for women all across Africa and to develop the research agenda that will reveal its benefits.

Summary

Though general evidence suggests that university education pays off in Africa both for individuals and for society, less than 5 percent of men and 3 percent of women of the usual ages now attend university, despite recent growth in enrollment. Far more research is needed, but it appears that university educa-

tion pays off in greater earning capacity. Moreover, women’s education may especially encourage smaller, healthier and better educated families who can deal more effectively with the challenges of the 21st century. A tertiary education ought to pay off even more in the future, as overcrowded, often inefficient African universities improve their curriculums and overall

standards of education. Specific evidence suggests that improvements to secondary education in Africa result in clear benefits, both social and economic, for those countries. And because university education has proved beneficial overall, social and economic growth is a net benefit.

tify a subsidy? How much? Is there a gender differential?

- 5) If there is a case for gender-differentiated public subsidy, how can costs best be reduced for female students and their families—targeted scholarships, loans or other options?
- 6) How can universities be made a practical option for women—how important is it just to expand places? What are the gender dimensions of competition for university placement, fee requirements, quality issues? Should there be more public or private universities? How does that relate to the fee question? Recruiting fee-paying students apparently helps students from richer families, but what about financial assistance for other students?
- 7) What measures to improve educational quality matter most to women? (Overcrowding, lack of housing and scarcity of books seem particularly important—is there a gender dimension?)
- 8) How can universities be made more “friendly” to female students? (Mentoring for students and gender training for faculty may help.) How well are existing interventions working?
- 9) How can women’s opportunities be expanded in fields like math, science and information and communication technology (ICT)—in technological areas in general—where employment prospects are brighter? What does the workplace hold for women in these fields?
- 10) How can the pipeline of qualified female secondary school graduates be improved, especially in math, science and ICT?

Until more empirical evidence is at hand, it will be hard to make sound strategic decisions. The first four questions noted above can be addressed fairly quickly through large-scale sample surveys, such efforts paved the way for the current drive for universal basic

education (UBE). As to the last six questions, some information can be gleaned by evaluating existing programs. In any event it will be important to design and test specific innovations.

Surprisingly little is known today about what is happening in women’s education at the university level in developing countries. Addressing the following issues may help elucidate the problems:

- Who goes to university, who gains and who pays?
- Is there a case to be made for stronger public policy to expand women’s education at the university level (who should go, who should gain, who should pay)? If so:
- What strategies for increasing women’s education at the university level may be most effective?

Why is so little known? What are women’s enrollments, and how big is the gender gap? What accounts for differing enrollment levels across countries and even across universities in the same country? Is there a case for government intervention—a “market failure”? What are the private economic returns to education for female students themselves? How does this compare to the private returns to education for male students? If the returns are there in the private sector, are there reasons why women cannot get and pay for the education they need to obtain those jobs? Does government need to help by providing facilities and teachers that students or the private sector cannot organize for themselves?

Should government help women with “bridging” finance through loans? Are there broader economic or social benefits from women’s university education that

the market does not recognize, or at least not fully, that justify government efforts to encourage it—and if so, in what fields? What strategies are most promising for increasing women's university-level education?

In poorer countries, women's university-level education has rarely been studied. Several possible reasons come to mind, and suggest a vicious cycle. Especially in low-income countries, a university education may seem an impossible dream for most women: university education for women is seldom a political hot potato or an urgent policy question. With so few women attending universities, data is hard to come by, so it is difficult to assess the returns to university education for women, or to study effective approaches.

As a result, policymakers and others may be unaware of the full potential benefits of university education for women, and little effort is made to increase women's enrollment. Compounding the difficulty in some places, women's university education may challenge longstanding traditions about women's roles in society.

Moreover, education policymakers often focus on achieving universal basic education (UBE; primary and usually lower secondary) as step one. In fact, it is only relatively recently that research has revealed the huge returns to basic education, and so spurred the drive for UBE. This may offer lessons for policymakers concerned with university education, as well.

On the basis of extensive research, many experts and most governments now believe providing education at the primary level and at least through the lower secondary grades for girls as well as boys is one of the best investments they can make (see, for example, Summers 1994). The “public good” case for government action is strong. The economic and social benefits of

female education are enormous but accrue mainly to girls when they grow up and to their own families and societies, while parents must incur considerable direct costs in sending girls to school. In addition, the long-term benefits may aid the family of the young woman's husband more, making it even harder for her own family to make the immediate sacrifices required to educate her.

Moreover, many parents regard the costs of educating girls as higher (because of safety or cultural concerns or because girls are expected to do more chores) and the benefits dimmer (because girls may “marry out”). Thus—particularly where incomes are low and few girls have traditionally gone to school—progress sometimes remains slow at the primary but especially at the secondary level. Strengthening the case for government support of UBE are both the public and private benefits that accrue, even if they take longer to do so (Herz and Sperling 2004; Herz 2002; World Bank 2001).

At the primary and secondary levels, faster progress for girls requires

- Making primary and secondary school a real option by providing a decent school with qualified and trained teachers and basic books and supplies, close to home
- Making schools friendlier for girls by providing female teachers, teaching in ways that encourage and do not stereotype girls and ensuring girls' privacy and safety
- Cutting the costs of education to parents, who often pay hefty fees even when schools are supposedly free

- Improving the quality of education overall (Herz and Spelling 2004; Herz 2002; World Bank 2001).

Much less is known about the benefits, both public and private, of university education for women. Better understanding of women's university enrollments, of the potential benefits of university education and of promising approaches may reveal similar themes and encourage efforts to educate women in universities more effectively.

Current University Enrollment Patterns

For starters, we know that many poor countries have few female university graduates—and far fewer women than men. *Women's enrollments are generally lower (often very low), and the gender gap larger; the poorer the country and the greater the social obstacles women face to studying at the university level.* In 25 sub-Saharan African countries for which data are available, average incomes are very low and men's gross enrollment rates (GERs) in tertiary (not just university) education average 4.8 percent while women's average about half that, 2.5 percent (World Bank 2002).

Moreover, these low GERs persist even though the number of higher education students in sub-Saharan Africa increased almost *tenfold* in 20 years, from 181,000 in 1975 to about 1,750,000 in 1995 (Bollag 2003). Given Africa's high population growth rate during that period, a tenfold increase in enrollments ending with GERs in the 3-to-5 percent range indicates just how few Africans had higher educations 20 years ago. In South Asia, where incomes are also low, the picture is only slightly better: In India, the GER for men is 10 percent and for women 6 percent, and in Sri Lanka 5.9 and 3.7 percent, respectively (World Bank 2002).

But as development proceeds and incomes grow, tertiary GERs for men and women increase, often sharply. In Latin America, for example, GERs for men often climb to 20 percent or 30 percent, and women's usually exceed men's. East Asia varies—14.6 percent for men and 8 percent for women in Indonesia, but 25.2 percent for men and 32.7 percent for the Philippines (China lacks data). In industrialized countries, tertiary GERs for men typically reach 45 to 55 percent and tertiary GERs for women are usually higher: The United States leads, with 70.6 percent for men and 91.8 percent for women (World Bank 2002).

Within individual countries, information is very scarce, but a similar pattern holds—women from poorer families are less likely to enroll in university. Even where university education is highly subsidized, it now reportedly mainly serves students—male or female—from better-off families, mostly in urban areas where social constraints tend to be fewer and primary and secondary education is often more plentiful and of higher quality (see, for example, Bollag 2003).

To understand women's enrollment patterns in universities, we need far better data on which women enroll. Better data from universities themselves will help. But just knowing who *does* enroll is not enough—we also need to know who *doesn't*. That requires national sample surveys. Yet in many countries, because so few women enroll, existing national sample surveys don't tell us much yet. We need more focused sampling to augment the national sample surveys now available.

Economic Returns To University Education

The economic and social benefits of education certainly accrue to individuals and their families, but the case has also been made many times over that society as a whole benefits by having an educated citizenry.

Higher earnings, lower poverty levels, smaller and healthier families, independence from the need for public subsidies, reduced crime rates and increased civic participation are only some of the benefits to national life that correlate to levels of educational attainment. If that is, in fact, the case worldwide, then there are a number of substantial arguments to be made for public (government) financing of education in those circumstances where the marketplace and/or individuals are unable or unwilling to support an effective system of higher education.

1. The payoff for individuals Education allows people to compete for higher-wage jobs. Notwithstanding well-known issues of unemployment among university graduates, in general, university education pays off, in part through access to formal sector jobs and the higher wages attached to those jobs. Technically, the private economic rates of return to education are measured as the percentage increase in wage rates associated with an additional year of schooling beyond the mean. These estimates are based on the direct and opportunity costs of university education for *students and their families*, not on the full costs of university education (see Appendix 1: Defining the Private Economic Rate of Return). In other words, the lower the out-of-pocket costs and foregone wages and the greater the wage gains from a university degree, the greater the private benefit of university education.

The private rates of return to higher education only slightly exceed those to secondary education. Moreover, returns to university education in Africa may be

Table 1: Private Economic Returns to Education by Level and Region (Percent)

Region	Primary	Secondary	Higher
Asia (non-OECD*)	200	158	182
Europe/Middle East/North Africa	138	136	188
Latin America/Caribbean	266	170	195
Sub-Saharan Africa	37.6	24.6	27.8
OECD	134	11.3	11.6

*Organisation for Economic Co-operation and Development

Source: Psacharopoulos, George and Harry Patrinos, 2002. "Returns to Investment in Education: A Further Update." World Bank Policy Research Working Paper 2881. Washington, D.C.: World Bank.

far below their potential. African universities are often overcrowded and may offer education of questionable quality and relevance. In addition, "[t]he continent's weak and poorly developed economies provide too few jobs for graduates, many of whom end up unemployed or emigrating to the richer Northern countries" (Bollag 2003).

The recent tenfold increase in enrollments does suggest students and their families believe university education pays off, but far more research is needed on what the private economic returns to university education actually are in Africa and whether men and women benefit differentially.

2 The payoff for economic growth generally: As more people gain university education, does national economic growth accelerate? Or does faster growth create a demand for university-educated workers as well as the means of supplying university education, i.e., through increased wages and taxes? No country has developed without a core of highly educated people. Yet comparing countries across the developing world, research has differed as to how much higher

levels of university education promote GDP growth, or the growth of GDP per capita. Some recent multicountry studies find that increasing primary and secondary education levels *and closing gender gaps* substantially promotes the growth of real income per capita, particularly in Africa (see Appendix 2: Female Education and Economic Growth). This type of analysis has not been extended to tertiary, much less university, education for women, however. Moreover, some evidence suggests math and science skills particularly matter (see Appendix 3: Math, Science and Per Capita Income Growth), but, again, gender dimensions have not been explored. Still, because the evidence on private economic returns is so much stronger, and because cross-country studies have certain technical and data-consistency problems, more attention has focused on private economic returns though these are only the start of the story.

3 The payoff for society. *The social returns to university education, for men as well as women, are harder to assess.* Many countries incur substantial fiscal burdens to subsidize local universities, reflecting strong political pressure as well as conviction. Private returns are high, not just because university education opens up better

jobs, but also because the costs of university education to students are low. As a first step in considering *social returns*, some researchers simply add in the full costs (especially the government subsidies), without changing the benefits. *The resulting "social returns" are much lower than private returns.* The gap between social and private is generally widest at the university level, where the level of subsidy is greatest. The social returns to university education in Africa thus defined are no longer relatively high, but are roughly the same as those in non-OECD Asia.

Social Benefits of University Education for Women: Some Hypotheses

Given the paucity of evidence for the social benefits of university education for women in Africa, perhaps the most critical question to ask is: are there, in fact, broader benefits to society, beyond the private benefits to students, large enough to justify hefty public subsidies of university education? In other words, if full benefits as well as full costs could be measured,

a “public good” case for subsidizing women’s education at the university level? If so, how strong is the case?

The broader social benefits from educating women at the university level thus need to be explored, and their social value considered and taken more explicitly into account. Because information about benefits at the university level is so scarce, it may help to assess the benefits of educating women through the secondary level and consider whether those benefits are likely to increase as women go on to universities. Extrapolating from this available evidence, a number of hypotheses can be generated.

1. Education Empowers Women and Thus Affects Family Size and Well-Being

Female education at the primary and secondary level is probably the single most important way to encourage a shift to smaller, healthier and better-educated families a finding now well known and widely valued among policymakers, though it is hard to put a price tag on it. As education gives women more voice and choice and greater earning power, more couples choose to have smaller families and to invest more in the health and education of each child. It is worth emphasizing that on net, as fertility and child mortality both decline, population growth slows substantially, as children’s health and well-being improve (Herz and Spelting 2004; Herz 2002).

- A study of 65 countries with over 93 percent of the population of the developing world finds that doubling the proportion of women with a secondary education (from the mean of 19 percent to 38 percent) would reduce average fertility rates from 5.3 to 3.9 children per woman, and the infant mortality rate from 81 to 38 per thousand births (Subbarao and Raney 1993). Female education is

the single most powerful influence on fertility, but of course when family planning and basic health services are also provided, the effects are stronger still. Similarly, the impact of female education on children’s health is striking, the more so when de

knowledge and changes their position in the family and society. In turn, these changes translate into more options and resources for children and for women themselves. Studies from such diverse settings as Bangladesh, Brazil, India and Cote d'Ivoire show women spend more of the income and assets they control on their families compared with men, holding constant the family budget (Schultz 2002). The study from Cote d'Ivoire found raising women's share of cash income in the family boosts the share of the family budget going to food and reduces the share going to alcohol, land and cigarettes, controlling for income and other factors (Hoddinott and Haddad 1995).

Other research shows more educated women more effectively find health care for their children. In Africa, half the children of mothers with a primary education are immunized—compared with about one-third of those whose mothers had no education (Gage and others 1997).

As a university education improves women's position in society and increases their resources, it is reasonable to think it will enhance the impact on family size and well-being, but far more research is needed. It seems reasonable to think children's education will benefit as more mothers gain university education, but one caveat may be that women with university educations may well spend more time in formal, time-consuming employment, raising a range of issues with respect to child care. Diminishing marginal returns are also possible at the tertiary level.

2 Education Empowers Women to Defend Against Violence and HIV/AIDS

A growing body of evidence suggests that women's education at the primary and secondary level also often

enables women to stand up more effectively for themselves and their children against threats like HIV/AIDS and domestic violence (Herz and Sperling 2004).

- Nobel Laureate Amartya Sen finds that education in India does help women protect against violence. Women with no formal schooling are less likely to resist violence than women with some schooling and are more likely to leave an abusive relationship (Sen, Amartya 2000). Other research finds women's formal education more effective in reducing violence against women where social norms already allow women more voice and choice in their own lives, but the empowering effects of education grow as women go from primary to secondary education (Malhotra and others 2003).
- Studies from Africa find educated women less likely to have been circumcised, and less likely to have circumcised daughters. In Kenya, women who had some secondary education were four times more likely to oppose circumcision in general as well as specifically for their daughters and granddaughters, as well as were women who never completed primary school (ORC Macro International 1995). In Burkina Faso, 78 percent of girls whose mothers had not graduated from primary school were circumcised compared with 48 percent of girls whose mothers had some secondary education (World Health Organization 1998). And in Egypt, mothers' education is associated with less intent to circumcise daughters, lower risks of circumcision and greater use of medical means of circumcision when girls are circumcised (Malhotra and others 2003).
- Teenage girls in Africa today are five times as likely as teenage boys to contract HIV, and more likely to be pulled out of school to care for family members

But women with post-primary education are five times more likely than illiterate women to know the basic facts about HIV/AIDS, according to a review of demographic and health surveys from 32 countries (Vandemoortle and Delamónica 2000). Rural Ugandans with secondary education are seven times less likely to contract HIV/AIDS; those who finished primary school are half again as likely as those who received little or no education (De Walque 2002). In Kenya, 17-year-old girls in secondary school are almost three times as likely to be virgins as those who complete only primary school (UNICEF 2002). School programs to provide education about HIV/AIDS help: a review of 113 studies from five continents finds (Kirby and others 1994). In Uganda, a study reports that of students in their last year of primary school, 11 percent of those exposed to an HIV/AIDS education program in school were sexually active compared with 43 percent who had only a standard health education program (Shuey and others 1999).

3 Improving Basic Education and Health Care Requires More Educated Women

More female teachers are critical to achieving UBE, especially where cultural traditions make it hard or impossible for girls to be taught by men as girls grow up. For cultural and practical reasons, more female health professionals are also needed to staff health systems (beyond the front lines, which often rely on women or men with little formal education, but where efforts to improve educational levels are underway). I

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up are in teaching and health care, as governments move to expand education and health service programs to reach women and girls. The first women to seek these jobs are often young and have extraordinary will to succeed. As they do succeed, social attitudes change—often quite quickly—and it is reasonable to think they gradually ease the way for other women. Women who become leaders may be particularly willing and able to address the needs of the majority of women, though this is by no means assured as these leaders struggle to survive politically.

6 Educating Women May Promote Political Participation and Better Governance

If we accept, as discussed above, that university education is a pathway to leadership, it is also reasonable to postulate that such pathways will take women into government offices, which is all to the good, because some evidence suggests that *where more women participate in parliaments, governance tends to improve*. One recent study finds that, holding constant for income and civil liberties, among other things, the greater the proportion of legislators who are women, the less corruption exists in both senior and lower levels of government (see Appendix 4: Governance and Women's Participation). It is also plausible to assume that women's concerns will get more attention in parliaments and other governance bodies as more women's voices are heard, but this hypothesis needs to be tested (see, for example, Chattopadhyay and Duflo 2003).

7. It's Only Fair to Educate Women as Well as Men

A prima facie argument may be that if men are going to be subsidized at university, women ought to be too, on grounds of fairness. *But the benefits from educating women at the university level go well beyond equity*

For reasons related both to economic efficiency and social objectives, women's university education may pay off for societies as a whole well beyond what women themselves gain. Whether these social benefits are enough to justify existing government subsidies of university education, or special subsidies for women, needs to be examined carefully case by case. Many countries are finding existing subsidies of university education hard to afford and are trying to cut back. This situation could, given all the other barriers noted in this paper, have a significant negative effect on women, even though women seem not to benefit significantly from the status quo. (Of course, the effort to reduce subsidies may generate political upheaval so severe that avoiding it becomes a "social benefit," and constitutional guarantees of free education sometimes complicate the process.) On balance, the possible social benefits seem sufficient to justify a) significantly more research to improve our understanding of them and b) greater exploration of approaches to increase women's education at the university level.

Working In Context: Setting Priorities In Government Budgets

Facing up to priorities, what percentage should education as a whole have in government budgets and, within that framework, how much should go to university education in general and to university education for women in particular? At independence, many African governments invested heavily in universities and other tertiary institutions, often to the detriment of primary and secondary education. As economies faltered and research began to show the positive effects of basic education, the tide shifted. Governments, strapped for funds (and short of political capital and managerial capacity), increasingly gave priority to primary and secondary education because of the high social returns. They have

often increased the share of their education budgets for primary and sometimes secondary education at the expense of universities. To date, lack of documented evidence regarding social and developmental benefits of university education has contributed to making the case for government support of universities difficult.

It has been possible, in some instances, to increase education budgets as a whole by cutting elsewhere—as Uganda has done—or by increasing government revenues. But “cutting elsewhere,” or increasing revenues, is typically difficult. Thus the case for spending more to increase university education for women will have to be very carefully made. As development proceeds and makes it easier to increase education budgets, it will become more feasible to expand special efforts to educate women at the university level. But perhaps efforts are most needed now in poor countries where few women have had the chance to go on to higher education, particularly if educating women at the tertiary level can be shown to provide social benefits similar to those obtained through basic education.

As stated earlier, the economic cost of university education would be beyond the reach of most ordinary families, especially in Africa, and, without some level of government subsidy, only a relatively small number of wealthy and middle class students could afford to attend university. The World Bank reports that the average cost of university education per student per year in sub-Saharan Africa from 1970 to 1980, the last years for which applicable data is available, was \$3,655 (from \$5^a in Somalia to \$11,0^a in Zimbabwe),

dents leave and get jobs (see Appendix 5: Charging Fees for University Education).

- **Improving professors' salaries or, as a distinct second best, allowing them to earn at least some outside income.** It is critical to bear in mind the tradeoff in time for teaching vs. outside work when recognizing the need to make teaching economically attractive. Nigeria roughly tripled its per-student subsidy and used the money mainly for a five-fold increase in depressed faculty salaries.
- **Rationalizing faculty to match skills to course offerings** to reduce duplication, improve the efficiency of classroom use and streamline graduation requirements.
- **Modernizing curricula generally, introducing more "modern" courses, especially in math, science and ICT and providing needed equipment.** For instance, the University of Dar es Salaam recently introduced new courses in computers, where women's participation is still low in a society where women's status is generally low.
- **Streamlining administration** so that teachers can focus on teaching.
- **Promoting quality assurance and needed equipment.**

the supply of places now constrains women's enrollment, expanding places is certainly necessary (Subbarao and others 1994). This seems to be the situation in a number of low-income countries where existing universities are often overcrowded, mainly with male students who are naturally reluctant to give way. Expanding universities is costly and obviously poses a whole range of challenges from constructing and equipping classrooms and laboratories to developing curriculum, recruiting faculty and possibly providing housing

How close universities need to be to women's homes should also be studied in different cultural contexts; distance clearly matters for primary and secondary school, especially for girls. It will not be practical, of course, to have many full-fledged universities in most countries, but especially where traditions of female seclusion exist, it may be worth trying "satellite" campuses or smaller "community colleges." Some form of distance education might also be an option. Concerns for education quality and for the range of options possible for study may well arise, of course. Moreover, while expanding places may be necessary, it is not sufficient, particularly in environments where women face cultural and practical obstacles to university education.

Consider affirmative action by giving women some break in the competition for admission. Some people argue that affirmative action conflicts with human rights policies that emphasize selection based only on merit, in this case mainly academic performance. But others point out that merit-based systems reward the quality of preparation, not inherent ability or even effort, and do not take into account prior disadvantage. Girls often face disadvantages making it harder for them to compete on merit with boys, such as fewer high-quality secondary schools, more time-consuming family responsibilities when they are growing up or

cultural traditions favoring male education. Affirmative action measures can level the playing field.

Make universities "friendlier" to women by ensuring safe housing for students who are far from home, along with private bathrooms, lighted pathways and secure transport systems; organizing "support groups" of other students; helping professors to teach in ways that encourage, rather than discourage, female students; encouraging female students to try fields where few women may have studied before if they have a real interest; and providing mentors especially from among female faculty members. Instituting effective policies and procedures to curtail sexual harassment could also help.

Cut the costs for female students The fiscal realities of African universities need to be recognized, but enrolling more women—especially women from poor families and remote areas—may require cutting costs for female students overall. Providing scholarships for women, of course, is a promising way to increase female enrollment. Where families foot at least a significant part of the bill for university education, it may be particularly important to cut the costs for female students. In many countries where women's enrollments are low, traditions favoring education of sons over daughters at the primary and secondary level may well carry over to the university level. When providing scholarships, however, it will probably be worth considering whether the scholarships should be targeted more precisely.

Target scholarships or other subsidies to focus on women from low-income families or from poorer or remoter regions or from disadvantaged groups in order to manage the costs of scholarships. Such efforts, however, are often difficult politically and

administratively. Means tests are notoriously hard to run where managerial systems are already strained and underfunded. Innovative ways to do means testing ought to be explored. At the secondary level, Bangladesh concluded that virtually all girls were poor enough to justify scholarships and runs a well-known nationwide stipend program that has brought girls to parity with boys in just a few years. The program offers enormous promise in economic gains and impact on family size and huge changes in the lives of these young women, but carries significant costs. The government continually considers ways to begin to target. In some countries, geographic targeting may be easier, if imprecise. Putting some university-level facilities in certain states or in rural areas may help (though attracting faculty can be a challenge, and efficiency requires considerable population density). Providing dormitories and travel funds for students from remote areas in urban universities where most students live at home may also be worth exploring.

Consider the labor market. As the University of Dar es Salaam's strategic plan says, "[t]he challenge is to produce a 'job creator,' not a 'job seeker.'" Linking scholarships or other subsidies to labor market demands may help, though it is easier said than done and raises questions about economic efficiency and "tracking." Female teachers and health care workers may be crucial, and in some countries these sectors offer the first extensive wage-job opportunities for women, so that scholarships may make sense.

Government programs to train people in response to labor-market demands have often failed to work as hoped. But modernizing curriculum offerings and encouraging women to get a solid education in fields (such as science, math and ICT) where employment

is growing might well be worth trying. Cooperation between government and the private sector may be worth exploring as well. In some fields such as engineering traditional bars to female employment may be hard to crack. Yet in others—particularly newer ICT fields—women may be welcome. It may be worth considering what incentives government subsidies now provide, not just to students but also to employers in different fields, and targeting some scholarships to encourage women's broader labor market participation.

Involve the Private Sector: Even if there is a strong case for public finance to subsidize women's education at the university level, government need not *provide* all it finances. What options are there for *subsidizing private universities (or colleges)* to do a better job of educating women, and in which particular fields?

Consider starting and supporting a women's college or university, perhaps regionally—as is being considered in Asia—or possibly closely tied to a university or a women's college in the United States. Such an institution could become a real center of excellence and encouragement for students (some who could pay, but most who would be on scholarship). The quality of education itself would provide a social benefit by equipping women for real leadership in the private or public sector. On the African continent, there are experiments underway in Kenya, Zimbabwe and the Sudan to establish colleges for women.

Suggestions for a "Research and Innovation" Agenda

Establish these basic facts:

1. Who attends and does not attend universities? (Including social and economic backgrounds of

families) What are the real costs? Who pays (government, families, students, others)?

- 2 What are the private returns to university education for women as compared with men? How do those returns vary in different labor market conditions? (Where people mainly work in the public sector, where the private sector is thriving, where women face particular barriers to labor force participation)
- 3 What are the social benefits from university education that go beyond what students themselves can capture? How do they differ for men and women? What, then, is the case for government subsidies for universities and for special programs to increase access for women?

These three questions can be tackled jointly through large-scale sample surveys (Such research has made the case for the drive for universal basic education and could be done faster for universities) Private foundations may have a relative advantage in setting up such surveys, given the politically contentious nature of the questions at hand.

Explore options for financing university education:

1. Given good private returns, there is an argument that students should contribute to the cost of their own education. (Governments may still need to address the question of how to provide enough places to meet demand, of course—see below) But if significant fees are imposed, does that raise concerns about students from lower-income families? Do students need bridging loans? How feasible are loans in Africa and elsewhere where economies are tight and enforcement mechanisms weak? Can a “graduate tax” be enforced?

- 2 Strong social returns justify government subsidies. Should subsidies target disadvantaged students, including those from low-income families, from rural or distant areas, or who are girls? Would such targeting be politically feasible? Should subsidies be full or partial? How should they be administered? Would requiring students from richer families to pay fees while subsidizing poorer students help universities afford to expand, or crowd out subsidized students? Can private universities in turn absorb some of the excess demand?

- 3 A combination of the two approaches outlined above, in which the student and the government each pay a percentage as is the case in South Africa, could also be considered. If each student pays at least something—with the amount to be means tested—and the government pays the rest, a more diversified group of students may result at the tertiary level. Scholarships and other means of financial support for low-income students would still be appropriate in this case. And, while this option would allow enrollment in public universities to expand, private universities could still be encouraged.

Consider questions relating to how these options might affect women:

How much does it help female enrollments just to increase university places for women? How much can private universities do? What should be the role of public universities? These questions are closely tied to the fee issue, of course. The experience of Makerere University in Uganda seems to deserve a particularly close look. By recruiting fee-paying students, Makerere has enormously increased enrollments and raised the proportion of female students among fee-paying

and non-fee-paying groups, but both categories may still favor students from richer families

Test Innovations:

Before ambitious approaches are instituted on a wide scale, it will help to test and build evidence for what works to encourage women's university education, bearing in mind the need for broader reforms to improve the quality, efficiency and financial sustainability of universities. Innovations to be tested might include promoting quality/efficiency reforms that seem particularly likely to matter to women students. Other possibilities include such things as targeted scholarships, ways of increasing university places for women (public, private or "mixed"), ways of helping women complete degrees (for instance by mentoring), or efforts to encourage women in promising scientific fields.

Wherever possible, randomized or at least controlled experiments will be particularly valuable as long as the social and economic context is made clear.

Some innovations take considerable time to test, but others (like the Bangladesh stipend program for girls at the secondary level) can demonstrate results clearly in just three or four years. A sensible next step may be to consider options for such innovations, set some priorities and get more underway.

Private foundations and other NGOs, working in close partnership with institutions in developing countries

have a clear comparative advantage as path-breakers in testing such innovations. Experience in several fields—primary and secondary education, health and agriculture, for example—shows that it is often such path-breakers who, with encouragement from governments, take risks and develop the more effective approaches, which governments and major donors of foreign assistance then replicate on a large scale.

Summary

Clearly, there are many questions to be asked and answered about the accessibility, value and cost of higher education for women living on the African continent, all of which involve social, cultural and financial issues of great complexity. But as we have passed the millennial mark and are now half a decade into the 21st century, a time when the world continues to grow more economically interdependent, it is necessary to begin considering ways in which everyone, in every nation, can at least be invited to participate in the global marketplace—and in most cases, that means helping them acquire more and better quality education. Education is power—the power to determine what one's life will be like, what kind of place one's country will be to live in and what kind of future will be available to one's children. For women, who have often been excluded from the benefits of education, particularly at the higher levels, their inclusion, now, in the consideration of methods to expand educational access throughout the developing world, is both critical and urgent.

Appendices

Appendix 1: Defining the Private Economic Rate of Return

The private economic return to schooling is usually estimated as the percentage increase in wages coming from another year of schooling. The costs entering this calculation are just private costs, usually assumed to be the wages the student foregoes in order to attend school, thus ignoring the costs governments bear to provide for the school. The following is a fuller and more technical explanation:

When the log [of] wages is regressed on years of schooling, the estimated coefficient on schooling indicates the percentage change in wages

received for attending an additional year of school. This schooling coefficient has the additional interpretation of private internal rate of return on the family's investment in that individual's schooling if the opportunity cost of the time of the student while she is attending school for that extra year approximates the private family cost of going to school, and other simplifying assumptions are maintained (Mincer, 1974).... If there is a systematic difference between these estimates of the private return on schooling for men and women, it tends to favor women more often than men, particularly in populations where women have in the past received substantially less education than men. (Schultz 2001.)

Appendix 2: Female Education and Economic Growth

A recent multicountry World Bank study finds that female secondary education (and female secondary education and beyond) promotes *the growth of income per capita*. Crucially, *it is not just the level of female education that matters but the gender gap*. Thus "[gender differentials in education and health are not an efficient economic choice. Societies that under-invest in women pay a price for it in terms of slower growth [of income per capita] and lower income. Furthermore, gender inequality can be explained to a significant extent by religious preference, regional factors and civil freedom... [T]he fact that religion variables systemati-

cally explain differences in gender inequality suggests that some societies have a preference for inequality and are willing to pay a price for it. (It would perhaps be more accurate to say that those who control resources in the society have a preference for gender inequality that they are willing to pay for.)" Gender gaps in education tend to disappear (and women's secondary education levels increase), as per capita income grows but not much until income reaches about \$2,000 per capita (PPP adjusted) and faster after that, as countries reach "middle income" ranges (Dollar and others 1999, also see Hez and Sperling 2004).

Another study finds that gender inequality in education retarded growth in per capita incomes from

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1960 to 1992, particularly in Africa and South Asia and inhibited improvements in child mortality and reductions in fertility. Gender inequality in education affects economic growth directly by lowering the average quality of human capital and indirectly by influencing investment and population growth. The study suggests that between 0.4 and 0.9 percentage points of the differences in economic growth rates between East Asia and sub-Saharan Africa, South Asia and the Middle East can be accounted for by the larger gender gaps in education prevailing in the lat-

ter regions. Looking at Africa, its growth in per capita income from 1960 to 1992 was only 0.7 percent annually, about one-third of the world average and 3.5 percentage points behind East Asia. The gender gap in education accounts for some 0.56 percentage points of the 3.5 percentage point difference. Moreover, women in Africa and South Asia had the lowest education levels, and African women had the slowest improvement, slower even than African men (Klasen 1999; see also Herz and Spelling 2004).

Appendix 3: Math, Science and Per Capita Income Growth

A recent cross-country study reports that GNP per capita grew faster from 1960 to 1990 in countries where the labor force had stronger math and science skills, as measured by national scores on international math and science tests. The authors emphasize that it was math and science skills that promoted GNP growth, not just that GNP growth in itself may have then led to more investments in math and science.

A single conclusion emerges from the various analytic specifications: Labor force quality has a consistent, stable, and strong relationship with economic growth. . . . The relationship does not appear to be the result of growth causing higher quality through investing resources in schools. . . . In fact, "the estimated

impact of quality on growth, indicating that one standard deviation in mathematics and science skills translates into more than one percentage point in average annual real growth, also looks implausibly large. The estimated growth effect of one standard deviation of quality is larger than would be obtained over nine years in average schooling. Moreover, in absolute terms, this effect is roughly equal to estimates of average rates of technological progress over the period. . . . We conclude that labor-force quality differences are important for growth; that these quality differences are related to schooling (but not necessarily the resources devoted by a country to schooling); and that quality has a causal impact on growth." (Hanushek and Kimko 2000; see also Herz and Spelling 2004.)

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Appendix 4: Governance and Women's Participation.

A recent World Bank study reports that “[n]umerous behavioral studies have found women to be more trustworthy and public-spirited than men. These results suggest that women should be particularly effective in promoting honest government.” Consistent with this hypothesis, the study finds that across countries, the greater the representation of women in parliament (measured by the percentage of parliamentarians who are women in a given country), the lower the level of corruption (measured by the most commonly used measure of corruption which captures the likelihood that officials at high and lower levels of

government will demand special payments). But both female participation and corruption may be related to incomes and to such things as civil liberties. In the poorest quartile of countries (per capita income below \$1,169), about 7 percent of parliamentarians were women, compared to about 17 percent in the richest quartile (incomes above \$6,866). Holding constant for income level and civil liberties among other things, regression analysis found that a one standard deviation increase (0.08) in the proportion of women in parliament will result in a decline in corruption of about 20 percent of a standard deviation, and similar results hold for various adjustments in the regression specifications (Dollar and others 1999, see also Herz and Spelling 2003).

Appendix 5: Charging Fees for University Education

Historically, many universities in Africa provided education free of charge. But faced with overstretched budgets, concerns about weak or declining education quality, and rising demand for education, many African universities are considering or implementing measures to institute or expand fees. Some have imposed fees covering tuition and other costs, some have imposed fees only for certain nontuition costs, some are trying a “graduate tax,” and some recruit some students who pay for their education and others who are subsidized. The classic dilemma arises: universities can ease their financial strain, but poorer students and other disadvantaged groups (reportedly including

women) are put at further disadvantage. Bollag (2003) summarizes experiences so far:

Ethiopia is experimenting with a “graduate tax,” where students are required to repay part of their education costs once they graduate and in principle find a job. Australia among other countries runs such a program, but concerns have arisen as to how it can be enforced in a country like Ethiopia with limited administrative capacity.

In Niamey, Niger, one university doubled administrative fees (\$20). Students staged a two-month strike, but the fees were maintained and the students returned to class. In Togo, however, when the University of Togo faced a budget crisis and increased

fees overnight from \$10 to \$100 without consulting stakeholders, 40 percent of students—mainly poorer ones—dropped out and a student strike ensued. The university compromised by cutting fees in half, and most students returned.

In 1991–1992, with about 6,000 students, a budget crisis and declining education quality, Uganda's Makerere University started recruiting fee-paying ("privately sponsored") students to attend along with those sponsored by government. By 2001–2002, Makerere's enrollment had risen fivefold to over 30,000, and almost three-fourths were fee-paying (Ahimbisibwe and Muhwezi 2003). The fees plus management reforms and introduction of more demand-driven courses have reportedly allowed Makerere to recover from near collapse and begin to regain its previous outstanding reputation (Bollag 2003). Yet with a student's annual cost at Makerere being about \$3,000 and only 3 percent of Ugandan adults earning over \$2,070, concern remains for students from lower-income families (Ahimbisibwe and Muhwezi 2003). The government sponsors 4,000 students with the best academic performance regardless of need, which is a practical advantage for students from richer

families; it is considering ways to target students from low-income families, but administering means tests is difficult (Ahimbisibwe and Muhwezi 2003).

In neighboring Kenya in 1998, the University of Nairobi began recruiting fee-paying students into its MBA program and then into several other departments, including law, education, science, engineering, and computer science.

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