

# Education Matters

**A**lison Wolf believes that education is oversold. Although everyone from parents to politicians seems to agree that we should encourage more children to enter college, in fact society (especially British society) doesn't need more highly educated workers. Instead, Wolf argues that we need more people at the lower education levels with improved reading and math skills. In other words, we need a rise in the "quality" rather than the "quantity" of education.

I would argue that we probably need both. I would also argue that Wolf conveniently overlooks a lot of compelling evidence on the value of education in her attempt to derail fresh initiatives to encourage more schooling.

Wolf's attack on the myths about education and growth has three main strands. First, while acknowledging that people with more education earn more (and have lower unemployment), she argues that some of this gap reflects innate differences between the people who end up with more schooling and those who end up with less. Thus, policymakers overestimate the value of additional schooling by extrapolating from the earnings gap between more- and less-educated people.

Second, she argues that even if more education raises individual earnings, it has a much smaller effect on the total income of society because education is really a rat race. Employers use education to slot workers into better paying jobs. But when one worker gets



ahead another falls behind, so the private return to schooling is much greater than the social return. If private and social returns differ, we have to move beyond narrow comparisons of individuals with different levels of schooling and focus instead on what happens when education is raised en masse.

This has been a major thrust of the "New Growth Theory" over the past decade, and in the third strand of her argument Wolf argues that the evidence comes up short. Instead of more education raising growth, she concludes that growth leads people to spend more on

relatively unproductive schooling. In fact, she argues that Britain is overeducated. Since the average Brit has several years less schooling than the average American, readers on this side of the Atlantic might wonder if they should be asking for some serious budget cuts in our public education system.

### **DOES EDUCATION RAISE INDIVIDUAL EARNINGS?**

The question of whether more education raises a person's earnings has received a lot of attention in the recent economics literature. Contrary to Wolf's argument, the consensus is that the earnings gap between people with more or less education is mostly a reflection of education per se, and not of differences in innate abilities. The basis of this consensus is a series of studies of what happens to people whose education was raised by changes in the schooling system. And coincidentally, one of the best examples comes from the U.K.

Until 1972, British children were only required to stay in school until age 15. Reflecting a long heritage of low educational attainment, the fraction leaving school at 15 was still over 30 percent in 1970. When a new law was passed raising the school leaving age to 16, about one quarter of the entire youth population was forced to stay in school an extra year. This is an ideal "natural experiment" for evaluating the benefits of extra schooling, since one can compare earnings, unemployment, health and other outcomes for people born in 1955 and 1956 to those born just a little later who were affected by the law. Comparisons can also be made to Ireland and Northern Ireland, where there was no change in minimum school leaving laws. The results show very clearly that the extra year of schooling paid off, raising earnings by well over 10 percent per year in later adulthood. The cohort that was forced to stay in school a

little longer also reports better average health and greater life satisfaction.

Analyses of similar episodes around the world show a similar phenomenon. MIT economist Ester Duflo examined the effect of a school building program in Indonesia and found that the extra schooling led to extra earnings later in life, with a rate of return quite similar to the those obtained from naive comparisons across people with different levels of education. Unfortunately, Wolf has chosen to ignore this carefully developed body of evidence.

### **IS THE SOCIAL RETURN TO EDUCATION LESS THAN THE PRIVATE RETURN?**

A key tenet of conventional economic reasoning is that relative wages reflect relative productivity. Employers will only pay 40 percent higher wages for a college graduate than a high school graduate if on average the college graduate is 40 percent more productive. From this it seems like a short leap to the prediction that an added college graduate adds 40 percent more to national income than an added high school graduate. But as economic theorists in the 1970s showed, that is not necessarily true when education functions as a "signal" of productive ability, rather than enhancing productivity directly. In the rat-race model of education emphasized by Wolf, people with higher innate abilities prove themselves by enduring extra years of schooling. Employers will only hire you as a manager if you have a degree (so college has a true causal effect on individual earnings), but





the degree itself is worthless. Thus, if we could find another way to sort out the high- and low-ability workers, we could dispense with it entirely. Moreover, if society encourages more schooling by making it cheaper or easier to get a degree, employers will simply notch up the standard; everyone ends up at the jobs they would have held anyway, and national income is no higher.

This line of reasoning has proved enormously attractive both to liberals (in the left-center American sense), who see the education system as the enforcer of an unfair class system, and to conservatives, who bemoan the erosion of standards in our schools. Stanford University economist Michael Spence, who originated the idea, recently shared the

Nobel Prize for it. It has also proved remarkably elusive to empirical scrutiny. How do you test a theory that says that even though education is worthless, it pays off for any single person? The only way is to look for larger scale experiments where sizeable groups of people changed their educational choices, and see what happened to the group as a whole. The rat-race model predicts no change. The alternative view – that schooling raises productivity – predicts that the group as a whole will gain.

The British experience with the rise in the minimum school leaving age is again an excellent example. After the law was passed, people who would have left school at 15 had one more year of school. But why would any-

one be fooled? Those who left at age 16 are the same people who previously left at 15, so employers should discount their extra schooling entirely. The fact that the cohort affected by the law had higher earnings throughout their adult lives than the cohort just before is direct evidence against the rat-race model, and in favor of the idea that the extra year of schooling had a real effect on productivity.

Another example of this “large scale experiment” idea is the G.I. Bill. Economists John Bound of the University of Michigan and Sara Turner of the University of Virginia found the education subsidy for ex-soldiers raised both education and earnings for the entire cohort of men born in the early 1920s.

There are other ways to evaluate the rat-race idea. One is to look at how education pays off in a market where employers don’t know your rank in the education distribution. For example, consider British immigrants in the U.S. Although they are better educated than the average Brit, they are not much ahead of the average American worker. American employers are arguably ignorant of how to rank a British worker’s education credentials – so why should these credentials have any signaling value in the U.S. labor market? But among British immigrants in the U.S. in the late 1990s, each additional year of schooling is associated with 10 percent higher wages – about the same as back home, or even a little higher.

My reading of the evidence is that education is much more than a rat race, and that signaling effects – if they exist at all – account for only a small fraction of the private return to schooling. On the other hand, I think it is possible that the social return to education actually exceeds the private return. For example, economists Lance Lochner of the University of Rochester and Enrico Moretti of UCLA find that raising the compulsory

school attendance age in the U.S. leads to a rise in education, and that this in turn leads to a reduction in crime – a positive “externality” of education.

#### **EDUCATION AND GROWTH – THE MACRO EVIDENCE**

People who are interested in the connection between changes in economywide education and growth should read Alan Krueger and Mikael Lindahls’ thoughtful piece in the *Journal of Economic Literature* (Dec. 2001). One of their key points is that the available educational attainment data for many countries are weak. This weakness is confounded when analysts attempt to estimate the effect of changes in education – as they do in the macro growth literature that tries to estimate the contribution of rising educational attainment to national income. Indeed, Krueger and Lindahl find that at least half of the variability of measured changes in schooling across countries is pure noise.

They reanalyze the correlations between education and growth, taking account of the measurement problems. Their conclusion: on average, economic growth is positively correlated with increases in schooling, with an effect that is not too different from the 5-10 percent rate of return predicted by the individual-level earnings differences. They caution, however, that the cross-country evidence is relatively fragile and fraught with problems of noncomparability, measurement errors and most fundamentally, a lack of a credible “research design.” At the macro level there are few analogues to the rise in the British school leaving age, and almost none that can be as analyzed with a clear counterfactual notion of what would have happened in the absence of the change under study.

The posing of a well-specified counterfactual is the hallmark of good social science

research. By this standard, Wolf's selective discussions of Egypt, Hong Kong, Korea and Switzerland fall short of the mark. Perhaps the only safe conclusion is that one can find examples of virtually any pattern of macro trends in growth and educational outcomes in the world. This is more or less the same message that emerges from Krueger and Lindahl's statistical modeling. The international evidence on economy-wide correlations between education and growth is indecisive.

#### **WHAT ABOUT TESTED SKILLS?**

As an alternative to raising levels of education, Wolf argues that society should focus on raising math and literacy skills. It is well known that people with higher test scores have higher earnings, even holding constant their education. Does this mean that there is a shortage of math and literacy skills, or that the social return to a 10-point rise in math scores is above the social return to another year of school? The evidence is thin.

First, the apparent returns to test scores are potentially affected by the same problems as education itself. Do people with high math scores have other attributes that raise their earnings and contribute to the apparent "return" to math scores? I suspect they do.

Is there a "rat race" in test scores? In the U.S., there certainly is. Test scores are used to allocate slots at selective colleges and universities, and there is a minor industry devoted to training students to achieve higher test scores without necessarily learning anything useful outside of the test itself. Moreover, education reforms at the state and federal level have mandated ever more standardized testing with the goal of using scores to moni-



tor and reward teachers and school administrators. With this shift in incentives, we have already seen improved test scores in many states. Whether this will have an economy-wide payoff is unknown. I am confident the implicit SAT cutoffs at the Ivy League colleges will rise in the coming decades.

In thinking about changing the direction of education policy toward specific skills, it is important to understand that all we can measure are "markers" of those skills – i.e., math and English test scores. We can devise policies to raise these markers. But will those policies have any effect on productive skills, or individual or national income? There are almost no studies that attempt to show a causal link from educational policy reforms to test scores to adult outcomes such as earnings.

A related problem in assessing the case for emphasizing skills is that we have little notion of what it will cost to raise math and literacy skills, or even how to do it. Test scores like the SAT are amazingly highly correlated with things we can't change, like parental education and ethnicity. Evidence from a randomized experiment in Tennessee analyzed by Princeton University's Alan Krueger suggests that lowering class size raises test scores, especially for minority and lower-income children. But critics of class-size reduction, notably Eric Hanushek of the University of Rochester, typically argue that it is too costly. So even though I wish my students had stronger math and literacy skills, I am not optimistic that we will be able to devise broadly useable policies to raise these skills, or that the social return to such policies will match the return to other policies that raise overall education levels. **M**