

Discussion

SOCIAL AND NONMARKET BENEFITS FROM EDUCATION IN AN ADVANCED ECONOMY

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The extensive literature on individual returns to education has been very influential on the thinking of economists and policymakers alike regarding the optimal amount of education for an individual and also the kinds of intervention that governments can or should undertake in educational markets. Wolfe and Haveman argue that many important social and nonmarket returns from schooling are being ignored. I am quite sympathetic to this view and believe that the investigation of nonmarket returns and externalities from education is a very important area for research.

Wolfe and Haveman focus on a number of these social and nonmarket benefits. In particular, they emphasize that greater schooling can lead to greater schooling of offspring, to better health for oneself and one's family members, to better consumer choices, to better fertility choices, to lower participation in criminal activities—and that greater schooling may have peer group effects related to the above choices.

This is a long list, and if only some of these benefits were important, it might be enough to change our views about what the optimal amount of schooling is for an individual from a social point of view. But one could add more standard social effects from schooling. There could be external returns to education. For example, the higher education of one's colleagues might increase one's productivity, or more-educated workers could undertake innovations that other workers in the economy might use. In addition, more-educated workers could make better political decisions.

Interesting related questions are whether these external and social

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nonmarket returns justify greater government intervention than we observe today, and whether these social returns have increased during the past 20 years as have private returns to education (private pecuniary returns to education), a phenomenon documented in inequality literature. Unfortunately, we do not get answers from Wolfe and Haveman.

My major concern with their paper is that despite the very important potential for new empirical work on these topics, the authors basically take a summary approach, and cite a large number of studies claiming these types of social and nonmarket effects. The problem is that all of these studies are ordinary least squares (OLS) estimates, which are driven by a variety of factors and do not establish that education, in fact, *causes* improvements in these various outcomes. Furthermore, the authors do not provide a satisfactory discussion of what these various effects actually mean, so it is difficult for the reader to understand what is an externality (that the government should care about) versus what is an effect that is already internalized by economic actors.

I find this of concern for two reasons: First, many of these effects may be present but may not correspond to any type of externality. For example, imagine that education leads to better consumer choices, but individuals are rational. Then when they are making their education choices, they take into account that not only will they earn more in the future, but also they will be able to get greater purchasing power from these wages because of their better consumer choices. In this case, the magnitude of these non-market effects is still useful to know for a variety of discussions, but there is no reason for the government to intervene, since these effects are already internalized. In other words, this type of discussion should start by a clear theoretical framework where we know what types of effects can be internalized, or are internalized in practice.

Second, and perhaps more serious, Wolfe and Haveman's paper takes existing associations in the data as the causal effect of education. It is quite possible that individuals who are more educated make better fertility choices or better consumer choices, but this does not mean that this is the causal effect of education on these choices. Individuals who obtain education are different, not only because of their ability, but also because of their parental and social background. It is quite likely that these background factors—not the education itself—lead to different consumer, fertility, or other social choices. These concerns lead to the question of what we actually know about any of these effects in a more careful empirical and theoretical setting.

Not surprisingly, here I would like to discuss some work that I have done on this topic, which explicitly deals with many of these issues. In joint work with Josh Angrist (2001), I investigated external effects to education in local labor markets. An often-expressed view, formalized among others in Acemoglu (1996), is that the productivity of workers increases when they are in the same labor market or in the vicinity of

other more-educated workers. If true, this would be an important external effect from education, not internalized by individuals, and would provide a clear reason for government intervention to increase the education of workers throughout the economy.

To sort out these issues, the simplest strategy is to run a regression similar to the log-wage/education regressions that are very popular in labor economics, and add average education in the neighborhood or the local labor market of a worker. The following is an example of a simple regression of that form:

$$\ln w = X \cdot b' + a \cdot s + c \cdot S + e,$$

where w is the individual's wage, X is a vector of non-schooling attributes, s is own schooling, and S is average schooling in the same geographic location. For the purposes of this regression, the local labor market might be a city, a metropolitan area, or the state. Rauch (1993) has run this regression at the city level, and finds a very large coefficient on average schooling. Rauch interprets this as an external effect, arguing that workers receive higher wages, and most likely are more productive, when they are in the vicinity of other more-educated workers.

Josh Angrist and I ran the same regression at the state level, and similarly obtained a very large coefficient on average schooling. More-educated individuals receive higher wages, but also they tend to increase the wages of workers in the same labor market. In fact this OLS regression implies that the (local) externality is of the same magnitude as the private returns to education. An individual's own wages go up by 7 percent when he or she obtains one more year of education, but when the average education in the state increases by one more year, each individual's wages increase by an additional 7 percent—thus wages increase by a total of over 14 percent. Therefore, the external effect is an additional 7 percent on top of the private return of 7 percent. Does this then justify the conclusion that these are significant returns, and that there is room for more government intervention in educational markets?

No. As with all of the OLS studies, whether they are at the individual level or at the labor market level, there is a serious endogeneity problem. Cities with highly educated populations are different from each other in many aspects, including the amount of overall labor demand, and workers select into different cities or states based on their comparative advantage and abilities.

Putting state effects in a panel regression does not really solve these problems. We need a source of exogenous variation in the level of average education across various labor markets. Josh Angrist and I looked back to the early 1900s for big changes in compulsory schooling and child labor laws that affected various cohorts of individuals. Using these laws, we constructed instruments for individual and average schooling. We found

that individuals growing up in states with tough child labor and compulsory schooling laws obtained significantly more education, and, as expected, this happens exactly at the point of dropping out of high school, not at the point of going to college.

Using this type of variation, which translates into substantial variation in average education across states at different points in time, we estimated the external returns to education. These instrumental-variables estimates paint a very different picture from the OLS estimates: There appears to be no evidence for large external effects. Our baseline estimates are around 1 percent and statistically not significant.

This evidence suggests that we should not rush to conclusions about the importance of external effects based on OLS evidence. This is somewhat more interesting for a personal reason, in that when I started the project I was convinced of the importance of external returns, based on my reading of the literature, case studies, and theoretical work that I had done previously (see Acemoglu 1996). However, once Josh and I became convinced (and managed to convince others) that we were exploiting the right type of variation in average schooling across states, the evidence was quite clear: no big externalities—in effect, no big \$500 bills lying on the street waiting to be picked up, even by the government.

Nevertheless, the absence of external returns in the labor market does not preclude the importance of other social and nonmarket benefits. A recent paper by Lochner and Moretti (2001) uses the compulsory schooling laws and the child labor laws that Josh and I put together to look at the effect of education on criminal activity. They find that individuals who obtain more education because laws prevent them from dropping out of school are less likely to commit a crime. This suggests that there might indeed be important nonmarket and social effects from education as argued by Haveman and Wolfe, though much more research needs to be done on the relationship between education and crime.

More generally, I think we should be looking for evidence of nonmarket and social effects from education in studies that are careful about the sort of variation used and that do not completely rely on association. We also need to start a serious discussion on the theoretical framework that distinguishes effects that are internalized for the individual versus effects that affect society as a whole, and thus can be properly be named “externalities.” Overall, we have to thank Wolfe and Haveman for bringing this important issue back to the top of the agenda. There is a lot of exciting empirical and theoretical research awaiting us.

References

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