Human capital augmentation versus the signaling value of MBA education☆

Andrew Hussey*

Department of Economics, 423 Fogelman Admin. Bldg., University of Memphis, Memphis, TN 38104, USA

ARTICLE INFO

ABSTRACT

Panel data on MBA graduates is used in an attempt to empirically distinguish between human capital and signaling models of education. The existence of employment observations prior to MBA enrollment allows for the control of unobserved ability or selection into MBA programs (through the use of individual fixed effects). In addition, variation in the amount of pre-MBA work experience allows for a test to distinguish between the models. In particular, a predominant signaling view is shown to predict smaller returns to the degree, the more pre-MBA work experience one has (controlling for total experience). Additionally, a unique feature of the data is that respondents were asked to report skills or abilities gained through their schooling, allowing us to determine the extent to which these purported skills are valued in the labor market. The combined evidence suggests that while human capital accumulation may contribute to the returns to an MBA, the majority of the returns is derived from the signaling/screening function of the degree.

© 2011 Elsevier Ltd. All rights reserved.

1. Introduction

Traditional human capital theory suggests that education positively affects earnings through enhanced productivity. However, the screening (or signaling) view of education, initially presented in work by Spence (1973), Arrow (1973) and Stiglitz (1975), demonstrates that direct productivity gains are not necessary to explain the observed monetary return to schooling. Rather, the private monetary value of schooling may be a result of asymmetric information and the desire of individuals to signal their pre-existing abilities through educational attainment. According to the human capital view, individuals invest in education until the marginal gain in productivity is equal to the marginal cost. The screening view, however, suggests that individuals may overinvest in schooling beyond this socially efficient level.[1] The idea that investment in schooling may be associated with large deadweight losses to society, and the subsequent implications of current education-related policies (focused primarily on encouraging investment in schooling), has prompted many attempts to empirically distinguish between the two theories.

A direct test of the two theories has proven difficult, however, primarily because screening or human capital augmentation cannot directly be observed. The most extensive body of the empirical literature on this subject attempts to isolate groups that can reasonably be assumed to be subject to screening from those that are less likely to be affected by the need to signal their abilities. Comparing estimated returns to schooling for the different groups can

[1] This is not necessarily the case. Even if schooling serves only as a screen on an individual level, there may be some social productivity gains associated with its role in improving matches between workers and jobs. See Wolpin (1977).

then provide evidence of the extent to which screening, if it exists, occurs. Results from previous studies draw mixed conclusions, however.

One methodology, suggested by Wolpin (1977), involves the comparison of self-employed individuals (who are presumably less likely to need to signal their abilities) to salaried individuals (for whom signaling to potential employers is relevant). Wolpin interprets the finding that both groups obtain similar levels of schooling as evidence against a predominant screening model. However, the finding that self-employed individuals have higher average earnings than salaried workers (holding schooling constant) can be interpreted as supporting a screenist view (Riley, 1979). Brown and Sessions (1999) adopt a methodology similar to Wolpin to test the screening hypothesis in the Italian labor market. They regress a proxy for household income on schooling for samples of self-employed and salaried individuals, controlling for selection into each sample. They find there to be positive and significant returns to education for both subsamples, but more so for the salaried persons, and they suggest that this is evidence of predominant screening. As noted by Weiss (1995), however, this finding is not consistent with Riley's model of screening, which predicts (under certain assumptions) that the rates of return to education are higher in occupations that are unscreened.

In addition to debate over how to interpret results, identifying the effects of screening by comparing employees versus the self-employed has other potential problems. It is well-known that earnings data on self-employed workers is unreliable, as there may be an incentive to underreport personal income, instead keeping it within the business so as to minimize tax payments. Also, there is reason to believe that self-employed individuals are not immune to screening. According to Lazear's (1977) 'consumer screening' hypothesis, self-employed professionals may acquire educational qualifications in order to signal the quality of their services to potential clients. Furthermore, obtaining certain credentials may be a legal requirement to being employed in certain fields. The problem of consumer screening may be mitigated by throwing out data on professionals (as Wolpin and others do), but is unlikely to be eliminated completely. Finally, this approach also rests on the implicit assumption that education decisions are made with complete knowledge of future job opportunities. Becoming self-employed may be due to not being able to find a regular job, or it may result from being fortunate and discovering a new product or business idea. In the presence of uncertainty about future job prospects, individuals may hedge by obtaining more or less education than may ultimately be needed.

A similar methodology, referred to as the *P*-test, after Psacharopoulos (1979), compares returns to education of individuals employed in the public sector to those in the private sector. The assumption is that screening is more widespread in the public sector, where, due to its less competitive environment, wages may deviate from the value of workers' marginal products for extensive periods of time. Psacharopoulos's weak version of the screening hypothesis implies that employers offer higher starting salaries to the more educated relative to the less educated

in the absence of other information regarding workers' productivity. Under the strong version, however, employers will continue to pay higher wages to the more educated, after the employee has been with them for some time. Psacharopoulos finds evidence against the strong screening version. Arabsheibani and Rees (1997) re-examine the *P*-test in the U.K., allowing for selection into private vs. public employment. They also find evidence against the strong screening hypothesis, since the rate of return to education for the private sector remains higher than the public sector. Brown and Sessions (1999) carry out a similar analysis, but their evidence is mixed.

The *P*-test approach is also subject to criticism. Most importantly, it rests on the notion that screening is relatively more likely in the public sector, where education and wages are more closely related merely due to bureaucratic precedent. It also suffers from the assumption of perfect foresight with regard to employment opportunities, as discussed above. Furthermore, while some researchers utilizing either the Wolpin or Psacharopoulos methodologies attempt to control for selection into screened and unscreened groups, they do not control for the endogeneity of schooling. Within each group, an unobserved trait can affect one's earnings and also affect the likelihood of obtaining various levels of schooling. If this trait biases the coefficients differently across categories (or there are different relevant unobserved traits in each category), then comparisons of these coefficients will be invalid.

More recent papers have shown that allowing both schooling and a measure of ability that is at least partially unobserved to employers at the time of hiring to vary with experience creates implications for the employer screening model (Altonji & Pierret, 1997, 2001; Farber & Gibbons, 1996). In particular, the coefficient on the ability measure should rise with time in labor market and the coefficient on schooling should fall, as the employer places decreasing weight on education as a signal and more weight on revealed performance (proxied in the regression by some ability measure). Unfortunately, this approach requires the assumption that some measure of ability available to the econometrician (such as AFQT scores[2]) is not available to employers, an unpalatable assumption considering the large cost associated with using formal education as a screening device.

In the absence of an exclusive ability control, the prediction that experience and the estimated coefficient on schooling are negatively correlated has more merit if employers are allowed to learn about workers' productivity *before* the schooling occurs. Consider, for example, that there are two types of people in a population: low-ability types and high-ability types, where high-ability types have greater innate productivity than low-ability types. Initially there is asymmetric information: individuals know their own type, while employers do not. Employers do, however, know the fraction of each type present in the work force. Also, over time employers may learn and become

---

[2] The Armed Forces Qualification Test (AFQT), a commonly used measure of ability, was administered to the respondents of the National Longitudinal Survey of Youth (NLSY).