Chapter 6: Conclusion

6.1 Introduction

This thesis has looked at tests between human capital and screening theories of the role of education in the labour market. This involved the review of existing tests between the theories and the conduct of new tests. Behind this discussion, and indeed most tests between the theories, has been the issue of whether education adds to individual productivity.

In reviewing the findings of the thesis, it is useful to distinguish between the validity of tests between the theories and the results of those tests. The discussion in the next Section of this Chapter therefore sets out some conclusions about how tests between the theories should be undertaken, before describing how the empirical Chapters of this thesis fit into that framework. The final Section describes the outcomes of the tests and attempts to reconcile them with other studies.

6.2 How to test between human capital and screening theories

As pointed out a number of times in the thesis and many times elsewhere by others, the problem in undertaking tests between the theories arises because they have common predictions for individual behaviour. There seem to be two fruitful directions to take in responding to this problem. One is to identify some special circumstances where the predictions of the theories do differ. An alternative approach is to test key underlying assumptions of the theories.

The first approach has been adopted in the literature. For example, tests of the existence of ‘qualification’ effects such as Hungerford and Solon (1987) or of the effect on earnings of fast or slow (or non-) completion of qualifications such as Layard and Psacharopoulos (1974) and Groot and Oosterbeek (1994) are tests of this type. However, the problem in such studies has often been that they could not rule out the existence of unobserved factors (unobserved by the researcher) that influence the individual outcomes that determine the conclusions of the tests.

One approach used in the literature to test between human capital and screening has been to argue that the theories’ predictions diverge in relation to some phenomena – wages or education – between designated ‘screened’ and ‘unscreened’ sectors of the economy. These tests involve distinctions drawn between the private and public sectors or between the self-
employed and employees, where the first group in each case was considered the ‘unscreened’ sector and the second group the ‘screened’ one.

The approach involved in these studies was reviewed in Chapter 2. It was argued there that a range of predictions was possible if the effect of education on productivity differed between the two sectors being compared. Since the predictions of the theories where the screened/unscreened dichotomy is used are unclear, the outcomes of such studies are inconclusive.

The second potentially informative approach to testing between the theories mentioned above is to test their key underlying assumptions. Screening theories have three critical aspects or assumptions that seem to be candidates on which to base such tests. These are that:

- individual productivity is not observed or is difficult to observe by employers;

- individuals send some signal via their education that employers make use of in their selection and remuneration processes; and

- individuals take account of the likely decisions of others in their behaviour – that is, they act in a strategic fashion.

Tests based on these elements of screening have appeared in the literature. Altonji and Pierret (1997) tested whether employers learned about employee productivity over time and concluded that they did.

Albrecht (1981) undertook a test based on the use one employer made of the education signal sent by individuals. Specifically, he set out to determine whether the existence of another source of information about potential employees supplanted the information role of education in the firm’s recruitment decisions. Albrecht concluded that education’s effect was not influenced by the existence of other information, so that its main role must be a productivity-augmenting one.

The third critical assumption of screening theories identified above, the existence of strategic behaviour by individuals, lies behind the test undertaken by Lang and Kropp (1986). They tested whether minimum schooling legislation influenced the schooling obtained by older individuals who were not affected directly by the legislation. The test in Beddard (2001) is
similar in form: whether changes in behaviour by individuals previously constrained from
going to university induced different behaviour among lower ability groups.

Such tests between the theories – either of the theories’ critical assumptions or of areas where
their predictions diverge – provide a more promising direction on how tests between the
theories should be constructed than those based on doubtful ‘sectoral’ comparisons.

6.3 Tests between human capital and screening theories in this thesis

Chapter 3 of this thesis is similar to the test conducted by Lang and Kropp (1986) in that it
involved a test of the existence of the type of strategic behaviour by individuals that screening
theories assume. The evidence supported the idea that individuals did behave in such a
strategic fashion. School students in South Australia lowered the education they acquired
compared with their predecessors in that state, and their peers in other states, when early
school leavers in that state left one grade earlier. That is, when offered the opportunity to
maintain their ‘distance’ from early leavers at a lower level of schooling, other students from
the same cohort took it.

Chapter 4 of this thesis involved a test where the predictions of human capital and screening
theories diverged. It was argued that while the predictions of the theories might be common
with respect to average behaviour, they differ with respect to the variance in wage outcomes
by education level. Specifically, it was argued that if education affects productivity and
individuals differ in their ability to convert education into productivity, education must add a
new source of variation in productivity. This idea was exploited in Chapter 4 with a test of
whether the variance in residual log wages increased with schooling. This test relied on two
conditions holding in the labour market:

• that productivity is at least broadly observed for individuals well into their careers (in this
case in their thirties), so that wages reflect individual productivity; and

• that education is productive.

Consequently, the test undertaken in that Chapter was a joint one of those two propositions.
Since screening theories rely on productivity being difficult to observe, a finding that
supported the first condition obviously causes some problems for explanations of education’s
role base exclusively on screening. The results of Chapter 4 suggested that the variance in
wages did increase with schooling. Therefore, the results supported the propositions that
education augmented productivity and, that at least for individuals well into their careers, productivity was observable. However, another element of the results supported the contention in Garen (1985) that the variance in wages would be lower in larger firms, since larger firms were likely to have poorer measures of individual productivity because of their greater costs of acquiring such information. Consequently, they would make greater use of education to screen employees than smaller firms.

Chapter 5 of this thesis involved a test of one of the underlying assumptions of human capital theory – that education is productive. Miller and Volker (1984) cast doubt on education’s productivity-augmenting effect. They found that those recent graduates (in three out of four groups) who worked in jobs related to their field of education earned no more than those who did not. Miller and Volker argued that if education provided valuable skills, then use of those skills should be rewarded through higher wages.

This test was applied to a recent data set of graduates in Chapter 5. The initial results replicated those of Miller and Volker – that graduates working in their field did not earn more than those working outside it. However, when selection issues were taken into account, graduates working in their field were found to receive a premium for working in their field, but traded off wages for the opportunity to do so. Therefore, employers rewarded the use by graduates of their specific education-related skills. The test conducted in Chapter 5 provided evidence that supported education’s productivity-augmenting role.

6.4 The results of tests between human capital and screening theories

The reliability of any test between theories about some phenomenon depends upon:

- the test being soundly based; and

- its proper conduct, in the sense that the key test variables are measured without error and that the effect of other potential influences are removed in the analysis.

The view expressed in this thesis is that the studies based on ‘sectoral’ tests fail the first criterion. Some of the tests surveyed in this thesis that survive that criterion fail the second one.

Despite this, there is very little evidence across any of the tests described or undertaken here that education does not increase productivity. Those tests that supported the operation of
screening in some way have generally not been at the expense of education’s productivity-augmenting effect.\(^1\)

The consistency of the evidence in this thesis, however, is imperfect. There is little reliable evidence that education does not increase productivity, so human capital theory receives considerable support from the empirical work undertaken here and the review of other papers that conduct tests between the theories. There is, however, conflicting evidence about screening. Some evidence supports its operation, leading to the conclusion that education has both a productivity-augmenting and information role in the labour market. However, it seems unlikely that individuals would behave in the strategic way described in Chapter 3 if productivity was observable (fully or partially), as implied by the results in Chapter 4.

The resolution of this issue seems likely to reflect the rate at which employers learn about individual productivity and how complete their knowledge is when they stop learning. The evidence from Altonji and Pierret (1997) was that employer learning was slow enough for education to have some potential information role in the labour market, but that it was likely to be small. In a country such as Australia, where the observed effect of education on wages appears to be smaller than in the United States (Miller et al. 1995), there would be even less scope for screening to be a substantial component of the effect of education on wages.

To return to the issues raised in the first Chapter of this thesis, if education’s effect is mostly a productivity-augmenting one, the social rate of return is likely to be higher than if its effect is just a screening one. On the evidence of this thesis, the conclusion is safer that education provides benefits to both individuals and to society and concerns that individuals might over-invest in education should carry less weight. It remains important to understand how the experiences of graduates change over time and what the effect of the education and training expansion on those experiences has been, but the conclusion of this thesis is that the source of education’s ‘value’ is largely its productivity-augmenting effect.

---

\(^1\)For example, the main test in Riley (1979b) relied on the assumption that education was no less productive in screened sectors than in unscreened ones.