

EDUCATION RETENTION RATES
AND LABOUR MARKET
OUTCOMES

Towards an effective investment in workforce productivity

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EDUCATION RETENTION AND LABOUR MARKET OUTCOMES

INTRODUCTION

The recent report of the Employment and Skills Formation Council, The Australian Vocational Certificate Training System, otherwise known as the Carmichael report, recommended that by 2001 ninety per cent of Australia's nineteen year olds should have completed Year 12, or an initial post-school qualification (Carmichael 1992). Currently approximately seventy five per cent of nineteen year olds complete the equivalent of twelve years of schooling (ABS, Cat. No. 6227.0).

The belief that the increased retention of youth in formal education will promote economic growth and a more equitable earnings distribution has played, and continues to play, a prominent role in the push for increased post-compulsory education and training in Australia. The purpose of this paper is to demonstrate that the link between education and these labour market outcomes is less certain and more complex than commonly assumed.

The analysis presented in this paper takes as its starting point two types of empirical evidence. First, that there is a strong relationship between an individual's earnings and their level of educational attainment. Second, that despite a significant increase in education retention rates over the past thirty years, productivity, economic growth and the earnings distribution appear to have improved very little, if at all.

The paper presents six education - labour market scenarios, defined by two views of the education process and three perspectives on the labour market (see diagram below). All six scenarios are capable of explaining the relationship between individual earnings and educational attainment. However, only one, the human capital - wage competition perspective proposes that there is a direct relationship between increased education retention rates and both economic growth and the earnings distribution. The apparent failure of increased education retention rates

to produce the desired labour market outcomes may therefore be seen to raise questions about the descriptive validity of the human capital - wage competition scenario. This is seen to have two implications. Either the labour market should be reformed to more closely resemble wage competition or the alternative education and labour market perspectives must be accepted as a better description of reality.

Following a brief exploration of the empirical nature of the education - labour market nexus each of the alternative views on the education process and the labour market are examined.

* First, the human capital - wage competition perspective is presented and the mechanisms held to link increased education retention rates to economic growth and a more equitable earnings distribution briefly explained.

* Second, the screening view of the education process is presented and the effects of increased education retention rates within a wage competitive labour market explored. It is argued that in so far as the education process is one of screening, rather than human capital formation, then increased education retention rates are unlikely to produce the desired labour market outcomes.

* Third, the job competitive perspective on the labour market is presented and the implications of increased education retention rates examined from both a human capital and screening perspective on education. Within a job competitive perspective individuals compete for jobs not wages. As a consequence, increased education retention rates will only promote economic growth and a more equitable earnings distribution through their ability to reduce on-the-job training costs.

* Finally, the segmented labour market perspective is introduced and again examined in light of both the human capital and screening perspectives. The segmented labour market model embraces elements of both the wage competition and job competition models.

In conclusion, the implications for education and labour market policy in

Australia are briefly explored. It is argued that the desired labour market outcomes rest on both the nature of the education process, and the ability of the labour market to benefit from a more competent entry-level workforce. It is proposed that while the characteristics of an effective education process are relatively consistent across all three labour market perspectives, labour market policy requires that a fundamental choice be made between the wage competitive and alternative labour market perspectives.

The Conceptual Schema

NATURE OF THE LABOUR MARKET

EDUCATION PROCESS Wage Competition Job Competition Segmented Labour Market

Human Capital Human Capital - Wage Competition

(Section 2) Human Capital - Job Competition

(Section 4) Human Capital - Segmented Labour Market

(Section 5) Screening Screening - Wages Competition

(Section 3) Screening - Job Competition

(Section 4) Screening - Segmented Labour Market

(Section 5)

2. THE EDUCATION - LABOUR MARKET NEXUS

The view that increased education retention rates will promote economic prosperity and a more equitable distribution of earnings may be seen to have gained support from the existence of a correlation between national prosperity and education participation rates, and the observed relationship between an individual's educational attainment and their

earnings. The following review of the issues demonstrates that while the evidence clearly supports the value of increased education to an individual, the impact of increased retention rates on national prosperity and the earnings distribution is far less conclusive.

(a) National Prosperity and Education. Over twenty years ago, Mark Blaug concluded a review of the relationship between education and economic prosperity by stating that the simple question - Are nations rich because they are better educated or are they better educated because they are rich? - has no simple answer (1970: 100). In an Australian context, the Commonwealth Inquiry into Education and Training (CIET) was said by its Chairman, Professor Bruce Williams, to have reversed the view held by previous national inquiries with respect to this issue. Reflecting on the CIET report, Professor Williams explained that:

"... the Murray and Martin Committees argued that growth in expenditure on education would increase growth in GDP, we argued that although increased expenditure on some forms of education was required for economic growth the main relationship was the other way round and that numbers in post-secondary education and expenditure would rise with GDP per head."

[Williams, 1979:

12]

Leo Maglen has more recently drawn a similar conclusion. He notes that from 1968/69 to 1985/86 the proportion of the full-year full-time Australian workforce holding post-secondary qualifications rose from 24.6 per cent to 51.5 per cent, whilst those with degrees or better increased from 3.2 per cent to 11.0 per cent, however, over the same period Australian economic growth rates declined (Maglen, 1990: 283).

An examination of the 1992 edition of the World Competitiveness Report, (which analyses and ranks the performance of 37 key economies) supports the view that the education systems ability to meet the needs of the economy and promote economic growth (as measured by Gross Domestic Product per head) depends on more than the level of public expenditure on education

and retention rates
(Economic Forum and IMD, 1992).

It would appear that the strongest conclusion that can be drawn is that an effective and relevant education system is a necessary but not a sufficient condition for economic prosperity.

(b) Individual Earnings and Educational Attainment. Turning to the relationship between individual education attainment and earnings, Mark Blaug concluded his review of the evidence on this issue with the often quoted statement that:

"In all economies of which we have knowledge, people with more education earn on average higher incomes than people with less education, at least if the people being compared are of the same age."

[Blaug, 1970:

1]

An examination of Census and survey data confirms the existence of this relationship in Australia. For example, the 1990 survey of persons with earned income in Australia found that the gross annual income of full-year, full-time workers with degrees was \$42,700, with a certificate or diploma \$30,080, a trade certificate \$28,630. For persons without post-school qualifications, average annual earnings is directly related to the age at which they left school (ABS, Cat. No. 6546.0).

(c) Education and the Earnings Distribution. The relationship between individual educational attainment and earnings does not, however, mean that a more equitable distribution of education will translate into a more equitable earnings distribution. Research conducted in the United States by Lester Thurow has found that despite the distribution of educational attainment among full-time full-year male employees becoming more equitable the distribution of earnings has become more inequitable (1982: 72). Similarly, despite a significant increase in Australian education participation rates since 1970 there has been no appreciable change in the distribution of earnings. Year 12 retention in 1990 reached 64 per cent, compared to about 33 per cent for most of the 1970s (Finn,

1990: 17). However, over the same period the earnings distribution remained virtually unchanged (ABS, Cat. No. 6546.0).

It may be seen that while we can be confident about the relationship between individual educational attainment and earnings, we can not be confident about the ability of increased educational retention rates to promote economic prosperity or a more equitable earnings distribution. It is with these issues in mind that the following examination of the various education and labour market perspectives is pursued.

3. THE HUMAN CAPITAL - WAGE COMPETITION SCENARIO

The belief that there is a direct causal link between increased education and both economic prosperity and the earnings distribution may be seen to rest on a human capital view of the education process and a wage competitive view of the labour market. Historically, the human capital view of the education process was developed within an economic orthodoxy that viewed labour markets as essentially wage competitive systems in which individuals compete for wages. As a consequence, the label "human capital" is often used as though it necessarily refers to a combined human capital - wage competition scenario. However, as already suggested, this paper seeks to demonstrate that the existence of separate and alternative views on both the education process and the labour market render such an amalgamated view untenable. The label "human capital" shall therefore be used only to refer to an education process which actually enhances the students' productive potential. That is, the education process develops in individuals attributes that employers value. These attributes are suggested to include scarce cognitive skills and personality traits ranging from self-reliance and achievement-drive to compliance with organisational rules (Blaug, 1976: 846).

The concept of human capital is reputed to have its origin in Adam Smith's work, *The Wealth of Nations* (1776/1970). The concept did not, however, attract significant academic attention until the work of Jacob Mincer (1958), Theodore Schultz (1961) and George Becker (1964). These three

writers are held to be largely responsible for instigating the interest in human capital theory that arose in the late 1950s and 1960s. One of the earliest statements of human capital theory in an Australian context was by H R Edwards (1963).

The wage competitive view of the labour market explains that an individual's earnings depend, like the price of a product, on the interaction of supply and demand. John Hicks, in 1932, explained the basis of this view in the following manner:

"The theory of the determination of wages in a free market is simply a special case of the general theory of value. Wages are the price of labor; and thus, in the absence of control, they are determined, like all prices, by supply and demand... The demand for labor is only peculiar to this extent: that labor is a factor of production, and thus demanded ... not because the work to be done is desired for and by itself, but because it is to be used in the production of something which is directly desired."

[Hicks, 1932/1964:

1]

Within a wage competitive perspective, the demand for labour is determined by three factors: the nature of available technology and the production possibilities so defined; the price of products; and the productivity of labour. The nature of available technology is viewed as being "neutral" and exogenously determined, and product price is seen to be determined in the final analysis by consumer preferences and the costs of production. The productivity of labour is therefore seen as the key independent variable. Human capital-wage competition theorists conclude that "educational policy, rather than direct intervention in the labour market, is the most efficient means of reducing pay differentials" (King, 1980: 236).

An increase in education retention rates within a human capital-wage competition scenario assumes that the interaction of supply and demand will determine wage rates and clear the market such that all people who are prepared to accept the market wage rate will get a job

(the conditions required to satisfy these assumptions are examined in the conclusion of this paper). These assumptions produce two interrelated effects:

(i) an increase in the number of persons with higher levels of education and therefore human capital which produces an increase in the overall productivity of the workforce and therefore promotes economic growth; and

(ii) a more equitable distribution of human capital within the workforce which, through the impact of these changes on relative wage rates, results in a more equitable earnings distribution.

That these outcomes appear not to have been the result of increased education retention rates brings into question the descriptive validity of the human capital - wage competition scenario. It is therefore useful to explore alternative explanations of the established relationship between individual education attainment and earnings, which are also capable of explaining the apparent failure of increased education retention rates to promote economic growth and a more equitable earnings distribution. One such explanation directly questions the human capital view of the education process. The following section presents an extreme view, in which the entire education process is seen as a screening process rather than as a process of human capital development.

3. SCREENING AND WAGE COMPETITION

The foundations of the screenist view of the "education" process are reputed to have been laid by Ivar Berg (1970) in his publication Education and Jobs: the great training robbery. It was, however, Kenneth Arrow (1973,) John Riley (1975) and John Stiglitz (1975) who were responsible for the increased interest in the screening hypothesis that arose in the late 1970s. This interest arose largely because these writers rendered the screening hypothesis compatible with a wage competitive view of the labour market.

The screenist explanation of an employer's demand for educational credentials rests on the ability

of the credential to convey information about the actual or potential productivity of individuals. For employers to act rationally when they demand more expensive "credentialed" labour it is sufficient that the education process merely sorts individuals according to their productivity. There are essentially two explanations as to how formal education may generate this productivity related information.

(a) Productivity-related Testing. One explanation suggests that the various levels of schooling present the student with tests of increasing difficulty that are directly related to productivity. This sorting and grading of individuals according to their employment-related capabilities may be carried out by educational institutions when they initially select and admit students or subsequently when they pass or fail students at different levels (Whitehead, 1981: 45). Education institutions may create new information either by sorting persons using known information or by conducting their own testing program.

(b) Self-screening. A second explanation of the manner in which educational attainment may act as a screen of prospective employees is via self-screening (Riley, 1975 and White, 1980). This explanation suggests that more capable persons will stay at school longer than less capable persons (regardless of what they are required to do during this time) as long as education credentials are being used as a selection device by employers. The result is self-fulfilling: the more capable students stay at school longer so as to secure the "better" jobs and employers continue the process by employing these more capable persons and paying them at a higher wage rate. A check on people "over-credentialing" themselves would be maintained via the fact that an individual who is unable to perform at the required level on the job would be sacked and therefore find it difficult to recoup foregone earnings and the other costs incurred in securing credentials. Investment in education may be seen to serve as a bond which workers forfeit if they fail to meet the screening criteria after they are hired (White, 1980: 14). While a pure form of self-screening is unlikely, the notion of self-screening helps to fill out and increase the explanatory

power of the screening
perspective.

Credential Inflation and Increasing Retention Rates

In a situation in which the education process acts as a screening device, an increase in education retention rates is likely to produce credential inflation. Credential inflation refers to the situation where in order to secure a job which is itself unchanged, a person must secure higher educational credentials than were required earlier.

The following discussion briefly explores the consequences of increasing education retention rates to Years 11 and 12 within a screening perspective. Assuming that prior to the expansion of retention rates there was a balance in the labour market between the supply and demand for persons with 10, 11, and 12 years of schooling, an increase in retention to Years 11 and 12 will necessarily reduce the ability of these credentials to distinguish between people in the manner that they did. This will generate inflationary pressure on credentials, the specific nature of which will depend on the nature of changes, if any, to curricula.

Changes to the curricula of Year 11 and Year 12 credentials are likely to be required as a means of promoting an increase in retention rates. If alternative credentials are established then it is likely that they will be less valuable in the market place than the original Year 11 and 12 credentials, but of more value than the Year 10 credential. Credential inflation will occur as people who previously held Year 10 credentials must now secure the alternative credentials in order to maintain their relative market position.

Credential inflation will also be the consequence of an overall reduction in the standard of the original Year 11 and 12 credentials, and a situation where the curricula is not changed but an increasing number of persons nevertheless secure the credential. In both these cases the discriminatory power of the Year 11 and 12 credentials are eroded, forcing the more capable student to continue beyond the twelve year level to signal their superior

capabilities.

An increase in education retention rates within a screening - wage competition scenario will produce credential inflation. Credential inflation imposes additional and unnecessary costs on prospective employees and society. It requires longer periods of formal education, the costs of which are likely to weigh heavier on lower socio-economic background persons. Furthermore, the increased social costs of supporting these increased retention rates may in fact inhibit productive activities that would promote economic growth. If the education process is characterised by screening, rather than human capital development, increased retention rates are unlikely to promote economic growth or a more equitable earnings distribution. In fact, as John Riley (1979) has suggested, the appropriate response may be for governments to reduce their subsidisation of education rather than to increase it. As Riley notes, "it is hardly surprising that there has been considerable interest in testing the screenist view" (1979: 229). While a review of previous attempts to test the screening hypothesis is outside the scope of this paper, it is important to note that the screening perspective has not been discredited. (A range of attempts to test the screening hypothesis were reviewed by Morris, 1984.)

The following section introduces Lester Thurow's job competition model. The likely impact of increased education retention rates within both a human capital and screening perspective are examined. The job competition model provides a labour market explanation of why increased education retention rates may not produce the desired outcomes.

4. THE JOB COMPETITION PERSPECTIVE

The job competition perspective developed by Lester Thurow argues that individuals compete with each other in the labour market for jobs and not wages: wages are seen to be determined by the distribution of power and sense of justice among workers and employers. As a consequence, the earnings distribution is seen to be defined by the nature of available jobs and not the available skills of the workforce. Thurow refers to the relationship between available jobs

and earnings as the "job distribution" (Thurow 1972 and 1975). The job competition perspective differs from the wage competitive view of the labour market in two fundamental ways. First, the job competition perspective attributes a significant role to on-the-job training in the skills formation process. Second, and partly as a consequence of the first, it explicitly recognises the existence of internal labour markets.

On-the-job Training

Lester Thurow argues that:

Most cognitive job skills, general or specific, are acquired either formally or informally through on-the-job training after a worker finds an entry job and associated promotion ladder."

[Thurow, 1975:

78]

In support of this proposition Thurow (1975) cites The President's Automation Commission which found that forty percent of the workforce had acquired most of their job skills through informal, casual, on-the-job training. The remaining sixty per cent reported that they acquired all of their job skills through on-the-job training (Thurow, 1975: 78).

Miller and Volker (1987) concluded from an examination of The Australian Longitudinal Survey data that almost 70 per cent of respondents had received informal on-the-job training while around 30 per cent received formal on-the-job training. An interesting indirect approach to the issue of measuring the amount of on-the-job training that occurs in Australia has been provided by Stromback and Moy (1989). They argue that the typical Australian male who left school at 18 years of age and earns 50 per cent more by the age of 28, is evidence that the person has become at least 50 per cent more productive largely as a consequence of on-the-job training.

It should be noted that there has recently been a concerted effort in Australia to encourage employers to invest in the skills of their employees. If successful, the importance of on-the-job

training in the Australian labour market can be expected to increase.

Internal Labour Markets

The provision of a significant role for on-the-job training within the job competition perspective leads to consideration of the nature of firm specific or internal labour markets. This is because on-the-job training is seen to confer power on employees who have acquired skills at the employers expense or are required to train others on the job.

That the employer has made an investment in the skills of an employee is seen to give the employee some power or influence over the job and the employer. Furthermore, the need for employees to play an active role in training others on-the-job may require that they be granted a superior claim to the job and promotion opportunities. This need would arise in an on-the-job training situation where the present job incumbent's position could be undermined by training someone else to do the job. If wage competition rather than job competition prevailed, after being trained the trainee would be in direct competition with the trainer.

Aage Sorensen and Arne Kalleberg (1981) in specifying their "vacancy competition" variant of the job competition model note that employee control and internal labour markets may arise from four sources not considered by Thurow. First, they suggest that where output is difficult to measure, the job incumbent may gain control over the job by controlling information about the job. Second, that highly interdependent jobs may enhance employee control by hampering measurability and by fostering employee collective action. Sorensen and Kalleberg list collective action as a third source of employee control because it can arise for reasons other than job interdependence. Fourth, they argue that the existence of internal labour markets may actually be reinforced by employers who establish promotion or job ladders as a performance incentive. These variables fill out and provide a new dimension to Thurow's model of job competition.

Thurow's Treatment of Education

In his monograph, *Generating Inequality*, Lester Thurow (1975) presents an analysis of the potential

impact of increased education retention rates on the distribution of earnings. His analysis does not explicitly distinguish between the screening and human capital perspectives, although at different points he implicitly treats the education process in a manner consistent with both views.

Within the job competition model employers are assumed to rank prospective employees in terms of "background characteristics", such as education, which are deemed to be related to future on-the-job training costs. As a screening process education need only identify people who, on the basis of innate ability and personality traits, would be cheaper to train. Education would therefore reduce on-the-job training costs to the employer by placing the most trainable person at the top of the job queue.

As a developer of human capital education may be of value to an employer within a job competition scenario in two ways. First, it may improve a prospective employee's ability to learn and thus reduce on-the-job training time. Second, education may provide specific vocational skills that in a direct manner reduce the need for on-the-job training.

Thurow's discussion of educational expansion and its impact on the earning distribution rests on the ability of increased education retention rates to reduce the costs of on-the-job training and/or produce a change in the job distribution. Thurow's discussion does not, however, take into account the impact of the costs of increased education retention rates on the earnings distribution. The costs of educational expansion not included in Thurow's model are two fold. First, there are the private costs of educational participation. These private costs include foregone earnings, fees and other sundry costs such as stationery, reference books and excursions. Second, "public" education requires tax revenue to be greater than might otherwise have been necessary. Thus the nature of the tax system and the manner in which it absorbs the costs of educational expansion should be taken into account. Only when both the private costs and the tax costs of educational provision are taken into account can total training costs be determined and the impact of increased education retention rates

on the economy and the earnings distribution be evaluated.

Following Thurow's own exposition, it is necessary to distinguish between employer-borne and employee-borne on-the-job training costs in determining the consequences of increased retention rates because the mechanisms involved are fundamentally different.

Human Capital Formation and Employee-borne Training Costs

The training costs that an employee must bear are necessarily a deduction from gross earnings. If education reduces training costs (as a promoter of human capital) then an employees net earnings could be increased. Increased education will only increase net earnings, however, if the reduction in employee-borne on-the-job training costs is greater than the combined private and tax cost increases that directly or indirectly fall on the employee.

The effect of increased education retention rates on the earnings distribution within a human capital -job competition scenario depends on the interplay of a range of factors: the nature and distribution of the increase in educational provision that occurs; the nature and distribution of the private and tax costs of increased education; and the skill requirements of the lower paid jobs in the job distribution.

(a) The Nature and Distribution of Education. If increased education retention rates do not result in a sufficient decrease in the training costs of low income earners or equally reduce the costs borne by both high and low income earners, then increased retention rates will not produce a significantly more equal net distribution of earnings.

(b) The Distribution of Private Costs. The nature and distribution of the private and tax costs of increased education retention rates may act to offset the positive effects of increased education on employee-borne training costs. Educational expansion may in fact lead to an increase in total training costs borne by low income employees and therefore exacerbate earnings inequality. This situation will be more likely to occur if education is not an effective human capital developer. It could, however, also be generated by high private educational costs and a

regressive tax system.

(c) The Skill Requirements of Lower Income Jobs. Within a job competitive model the ability of reductions in training costs to affect the net earnings of low income earners necessarily depends on the significance of training costs as a subtraction from gross earnings. If low income jobs in fact have low skill requirements and therefore low on-the-job training costs then the ability of increased education to improve the net earnings situation of low income earners will be significantly curtailed.

It may be seen that within a job competition scenario there are a significant number of variables that may impinge on the ability of increased education to reduce employee-borne training costs and promote a more equitable net earnings distribution. This lack of a necessary positive effect derives largely from the view that the distribution of earnings is determined by the job distribution which would be unaffected by a change in employee-borne training costs. Furthermore, because the job distribution is unaffected by a change in employee - borne training costs there will be no effect on productivity and therefore economic growth.

In the following section the possible impact of increased education retention rates, on the job distribution and therefore both economic growth and the earnings distribution through employer-borne training costs will be explored.

Human Capital Formation and Employer-borne Training Costs

If employers are faced with significant training costs, a reduction in these costs may induce changes in the job distribution in three ways: by reducing production costs; by inducing product substitution and technological change as a consequence of imposing unavoidable implicit training costs on employers; or via Thurow's view of induced technical change.

(a) Reduced Production Costs. If increased education retention rates reduce employer-borne training costs the impact of these cost reductions are unlikely to be the same across industries and firms. It should be noted that Thurow's analysis must be expanded to

include the direct and indirect tax costs of increased education retention rates borne by employers. The result of reduced employer-borne training costs (assuming competitive product markets) will be that industries and firms who have experienced the largest relative reduction in costs will expand, while those experiencing the least benefits will contract. The impact of these changes on the earnings distribution will depend on the relative position of the jobs that are created or destroyed within the national job distribution. The impact on economic growth will depend on the international competitiveness of the products produced as well as the cost effectiveness of education as a training cost reducer.

(b) Unavoidable Implicit Training Costs. If an increase in education retention rates entails an increase in tax revenue then the incidence of these taxes may fall largely on the employer. Such taxes may be levied directly on firms, or the burden of additional taxes may fall indirectly on firms as employees seek higher wages to offset taxes levied directly or indirectly on them. This increase in costs should, however, be seen as an unavoidable "implicit" training cost to firms. Whereas prior to the expansion of education firms could avoid paying for more educated labour they cannot avoid the tax costs created by increased education retention rates. As a consequence, it will be in the firm's best interest to ensure that they develop the technology and jobs that are able to make use of the abilities of a more educated workforce. Even if the expansion of educational participation does not entail additional costs to the firm, it would still be expected that the profit maximising firm would seek to take advantage of a more "educated" workforce in a similar manner. An increase in educational participation rates may thus induce an increase in the number of jobs which require these superior abilities.

The expansion of skilled jobs and the contraction of unskilled jobs may produce a more equitable earnings distribution. The increased productivity of a more skilled workforce might also promote economic growth. However, the cost effectiveness of increased educational retention rates as opposed to on-the-job training would need to be evaluated.

(c) Thurow's View of Induced Technological Change. Thurow does not explore induced technological change of the type discussed above because of the omission of educational costs from his analysis. He does, however, suggest that an increase in the supply of more educated-lower training cost employees may induce firms to direct their research efforts towards developing technology and jobs that capitalise on this cheaper, more abundant, factor of production. As discussed above, this may promote economic growth and a more equitable earnings distribution by increasing the number of skilled positions in the job distribution.

The separation of employee from employer-borne training costs in the previous discussion was purely for expository convenience. The impact of educational expansion on the earnings distribution and economic growth would in reality be a composite of the effects of educational expansion on employee-borne and employer-borne training costs. These two channels may be mutually supportive in promoting positive outcomes but it is plausible that they act in opposite directions or indeed both have a negative impact. Negative consequence would occur if formal education was an ineffective promoter of human capital. The extreme case of such ineffectiveness is the concern of the following section.

Screening and Job Competition.

If education acts most significantly as a screening device, then education within a job competition model would be a process that identified persons with lower training costs. Only if existing educational screening processes did not effectively rank job seekers in terms of their training costs would increased education retention rates within a pure screening model have positive outcomes. The more likely scenario is where an expansion of education results in an increase in the total cost of securing the same person in the same job. In Thurow's words:

"As the supply of more highly educated labor increases, individuals find they must improve their own educational qualifications simply to defend their current income position ... In effect, education becomes a defensive expenditure

necessary to protect
one's 'market share'."

[Thurow, 1975:

96-97]

Credential inflation imposes an unnecessary cost on an economy and may inhibit international competitiveness. The impact of educational expansion on the net distribution of earnings will, however, depend on the distribution of the private and social costs discussed earlier. A depressed but more equitable distribution of earnings may be produced through a progressive tax system or by imposing additional "educational" costs on higher income earners. The undesirable side effects of either of these approaches, however, suggests that a screening-job competition model does not provide a coherent justification for increasing education retention rates.

SEGMENTED LABOUR MARKETS

Segmented views of the labour market differ from wage competitive and job competitive perspectives in that they attribute a fundamental and decisive role to technology in determining the nature of the labour market. Segmented labour market theorists argue that the labour market must be understood as being comprised of at least two sectors in which the nature of jobs, the role of education and opportunities for on-the-job training result in significant differences in employment conditions. The purpose of this section is to provide an overview of three variants of labour market segmentation : Michael Piore's (1973) - Technological Determinism; Edward, Gordon and Reich's (1975) - Social Control Model; and Martin Carnoy's (1980) - Reserve Army Model. These three models differ in their analysis of the segmentation process but share the view that technology plays a critical role in creating a fundamental distinction between a "primary" and "secondary" labour market; although Carnoy does not use these labels. Jobs in the primary sector of the labour market provide the job incumbent with access to what Piore (1973) refers to as mobility chains. These chains constitute a career path along which there are opportunities for progression towards higher paying and higher status jobs. Jobs in the secondary labour market are characterised by their "low wages and fringe benefits,

poor working conditions,
high labour turnover, little chance of advancement and often arbitrary and capricious supervision"
(Piore, 1973: 126).

Piore's - Technological Determinism

Piore argues that the fundamental distinction between primary and secondary sector jobs arises out of the fact that technology increases productivity through the division of labour. He attributes to technology a deterministic role which results in the creation of an ever increasing number of jobs with an ever decreasing number of associated tasks and skill requirements.

Although Piore's model proposes this immutable tendency towards a polarised workforce of primary and secondary sector jobs, he argues that it is useful to recognise a distinction within the primary sector between an upper and lower tier (1973: 126). This middle ground arises primarily from the need in large scale capital intensive production for a significant number of production and maintenance workers. These jobs, along with the highly trained craft workers required in more labour intensive production techniques, are seen to require a more stable workforce. This stability is achieved through the creation of mobility chains which provide rewards based largely on years of service. Lower and upper tier primary sector jobs differ in the nature of abilities and orientation required. Lower tier jobs require persons with specific traits or an orientation towards routine and repetitious work, while upper tier jobs require persons with the ability to deduce general principals.

In Piore's formulation post-compulsory education is held to be largely irrelevant to productivity in the secondary sector. Lower tier primary sector jobs are seen to require specific skills training while upper tier jobs require a more general - theoretical level of education.

Edwards, Gordon and Reich's - Social Control Model

Edwards, Gordon and Reich's view of segmentation differs from that of Piore's in that it explicitly recognises a conflict of interests between workers and employers. According to Edwards, Gordon and Reich:

"Segmentation results not solely from the interplay of blind technological forces but also from the conscious desires of managers and capitalists to maintain control over the labour force and the production process."

[Carnoy, 1980:

38]

They argue that monopoly corporations, with more stable production and sales, have developed job structures and internal relations that reflect that stability. They talk of the "bureaucratisation of work" as a process which elicits and rewards stable work habits in employees. Where product demand is unstable they argue that the result is jobs which are also unstable and are marked by high turnover and a lack of investment by employers in the skills of their workforce (Edwards, et al., 1975).

Edwards, Gordon and Reich's model attributes a significant role to the power of large corporations and the conscious attempts of employers to control their workforce. However, their formulation suffers from a lack of specification, as Carnoy has observed:

"The precise connections among product market dualism, the requirements of monopoly capital, and labour market segmentation are never spelled out. Moreover, their treatment of the relation of these technological forces to the 'conscious' forces promoting segmentation is never clearly explained."

[1980:

38]

This lack of specification led Carnoy to propose his own model of labour market segmentation which may be seen to move beyond the technological determinism implicit in Piore's model, while providing a mechanism, through the notion of the reserve army of unemployed, which explains the suppressed employment conditions that characterise the secondary labour market of both Piore's; and Edwards, Gordon and Reich's formulation.

Carnoy's - Reserve Army Model

Carnoy proposes that there are in fact four labour market segments which he labels: the higher education sector; the monopoly or unionised sector; the competitive sector and the craft sector. The craft sector is seen as a disappearing cluster of jobs as a consequence of technological change. Carnoy's analysis is therefore concerned primarily with the other three sectors.

Carnoy's model of labour market segmentation redefines the nature of the ground between the secondary and the primary sectors. He is therefore, grappling with a similar group of jobs as those that led Piore to propose a distinction between an upper and a lower primary sector. However, as Carnoy points out, Piore's lower-primary sector is too varied in character; "from well paid jobs in a highly structured internal labour market to many dead end jobs" (1980: 39). This led Carnoy to propose that primary workers in the organised jobs of the large scale capital intensive firms, most public sector employment and the unionised firms should be formed into one sector, which Carnoy labels the "unionised" sector. Carnoy labels his second labour market segment the "competitive" sector. This sector represents an amalgamation of those jobs that fall into the secondary sector and the unorganised non-unionised dead end jobs of Piore's lower-primary sector. The third sector essentially remains the same as the upper-primary sector in Piore's model, although it is renamed the higher-education sector by Carnoy.

Carnoy's model explicitly recognises a significant role for technological de-skilling in creating reserve armies of unemployed. As Carnoy explains:

"Even though the small-firm owner may not see himself as more powerful than workers, the technology developed by larger capitalist firms and universities is constantly saving on labour and attempting to make complex, skill-requiring tasks into simpler, semi-skilled tasks. This helps create a surplus labour situation ..."

[Carnoy, 1980:

42]

This surplus labour situation allows employers to pay workers less than what they are worth to the

firm (their marginal revenue product). This productivity-earnings differential is seen to be largest in the competitive labour market sector. This is because unlike the unionised and high-education sectors entry into these jobs is relatively free and open to competition from the "reserve army or the unemployed". However, Carnoy argues that "one of the most important features of developed-country labour markets in the last decade has been that the privileges and job autonomy of the high education segment have been eroded by technological change" (1980: 45).

Within Carnoy's formulation post-compulsory education plays largely the same differential roles as in Piore's model, except that Carnoy adds that education may act as a barrier to entry in the Unionised sector. The role of education within Carnoy's formulation may therefore be summarised as being:

- Competitive sector- no role for post-compulsory education;
- Unionised sector (a) to identify or develop specific traits or an orientation towards routine and repetitious jobs;
- (b) to act as a barrier to competition from non-credentialed workers;
- Higher education sector - to identify or develop the ability to deduce general principals.

Increasing Education Retention Rates Within a Segmented Labour Market

The segmented labour market perspectives of Piore (1973); Edwards, Gordon and Reich (1975); and Carnoy (1980) suggest that educational attainment is of little or no value in the secondary or competitive segments of the labour market. As a consequence, as Carnoy explains:

"The segmentation model argues that increased schooling can achieve only a small percentage of the results claimed for education and training by human capital theory. In order for educational expansion and reform to be effective in

achieving economic and

social change, they must be accompanied by an employment policy which not only

creates more jobs (through taxation and other incentive policies, as well as direct state

employment), but also creates more 'primary' jobs, or changes the conditions of

employment and pay in the secondary market, in part through an incomes policy which

equalises earnings among workers by raising lower incomes relative to higher."

[Carnoy, 1980:

113]

Thus in line with the job competition model, an expansion of human capital developing education

within a segmented labour market would need to be matched by the creation of appropriate jobs.

To achieve a more equitable distribution of earnings these jobs would need to be in the primary

sector. To achieve economic growth, these jobs would need to efficiently produce a product for

which there was adequate demand. Thus, market research and human resource planning would need

to be an integral part of a policy to promote economic growth via an increase in the skill level of

the workforce within a segmented labour market.

If appropriate jobs are not created as the skill level of the potential workforce increases, then the

likely result will be an increase in the effective scope of the reserve army of unemployed or

underemployed. Within Carnoy's model, it is the existence of a reserve army of workers capable of

doing "technologically" de-skilled jobs that depresses the working conditions of jobs in the

competitive or secondary labour market sector. The effective size and scope of the reserve army

may also however, be increased by changes on the supply side. The generation of a more educated

and more skilled reserve army of unemployed or underemployed may erode the privileged positions

of employees in both the "unionised"(or lower-primary) sector and the "higher education" (or

upper-primary) sector. As a consequence, a possible outcome of increased education retention rates

is an increase in the size of the competitive labour market segment.

However, if employees in the

"unionised sector are sufficiently powerful, they may be able to defend their privileged position by

pushing educational prerequisites up. This would set in train, or perpetuate, a process of credential inflation.

The outcome of an education induced increase in the skills or human capital of the workforce when appropriate jobs are not forthcoming will be an increase in the size and scope of the reserve army and/or credential inflation. Neither of these outcomes will have the desired impact on the earnings distribution. And only if a more educated reserve army forces down wages and creates additional profits, which employers invest effectively in the efficient production of products that are in demand, will increased education retention rates promote economic growth.

If the education process is predominantly one of screening, as in both the wage competition and job competition labour market perspectives, the outcome within a segmented labour market will invariably be one of credential inflation.

6. TOWARDS AN EFFECTIVE INVESTMENT IN WORKFORCE PRODUCTIVITY

This paper has presented a framework within which the likely impact of increased education retention rates on economic growth and the earnings distribution may be explored. Two types of conclusions may now be drawn: one about the education process, the other about the labour market.

The Education Process.

The modelling of an educational screening process within the wage competition, job competition and segmented labour market perspectives indicates that if the predominant role of increased education is screening, the outcome will be credential inflation. The only exception being where existing screening processes are inadequate and cannot be improved without increasing the duration of "education." Credential inflation was seen as being highly unlikely to improve the net earnings distribution and as adding an unnecessary cost that may in fact undermine international competitiveness.

This suggests that regardless of the nature of the labour market, the expansion of education should

seek to ensure that the education system effectively meets the needs of the economy. This requires knowledge of industry needs and an appropriate range of options that balance general and vocation specific skills formation. Furthermore, it is necessary that skills formation be provided in the most cost effective manner. A critical issue in this regard, as discussed in relation to the job competition perspective, was the distinction between on-the-job and institution based provision. If education and training can be provided more effectively on-the-job then there is a strong case for supporting on-the-job training initiatives.

It should be noted that on-the-job training is likely to be more effective than institutionalised training where the required competencies are difficult to specify or are continuously changing. The nature of the demand for skills in leading edge firms or in occupations and industries faced with rapid or uncertain technological and organisational change may therefore be expected to be less amenable to institution based skills formation.

Another issue discussed in relation to the job competition model was the need to take into account the private and tax cost effects of increased education retention rates. The Labour Market.

The human capital - wage competitive labour market scenario postulates the existence of a direct link between increased education retention rates and both economic growth and a more equitable earnings distribution. The evidence that the significant expansion of education that has occurred over the last thirty has not produced the desired labour market outcomes may be interpreted in two ways. On the one hand, as an argument for recognising the issues raised by the educational screening hypothesis the job competition model and segmented labour market theories. On the other hand, it may be used to argue that the problem is that the labour market is not sufficiently wage competitive and should be reformed to more closely resemble such a labour market.

(a) Towards a Wage Competitive Labour Market. The requirements of a wage competitive labour market include the following:

- * a large number of independent buyers and sellers of labour such that no individual or group has sufficient influence over either demand or supply as to be able to alter the wage rate or the employment level;

- * the abilities and skills of the labourforce and the nature of job requirements are able to be accurately determined and specified;

- * there are no artificial and non - competency based barriers to hiring and firing. This applies from both the perspective of employees or potential employees in supplying their labour and from the perspective of employers in their demand for labour.

The wage competitive labour market requirement that there is a large number of independent buyers and sellers of labour raises the issue of the role of unions and monopoly capital as discussed in relation to segmented labour market theories. Of all workplaces in Australia with five or more employees, it is estimated that the majority of workplaces (57 per cent) had no union members (Callus et al., 1991: 7). Furthermore, over 96 per cent of firms in Australia are small businesses (employing less than 20 people, or less than 100 in the case of manufacturing) which together employ a little less than half (48 per cent) of the Australian workforce (ABS, Cat. No. 1321.0). It would therefore appear that a significant number of firms and employees are independent buyers and sellers of labour that would have little ability to influence the labour market.

The ability to accurately specify the required employment competencies and to clearly certify and recognise those individuals who have acquired these competencies is the cornerstone of the current competency based approach to skills formation being advanced by the National Training Board and State training agencies.

Equal opportunity, and other legislation, combined with this move towards competency based approaches to skills may be seen to provide a context within which artificial barriers to employment and unfair dismissal may be challenged by individuals. From the

perspective of employers, the existence of such legislation may be seen as inhibiting their ability to dismiss employees. However, the increasing array of legislation that protects individual workers from discrimination and unfair dismissal may play a role in reducing the perceived need by employees for unions to protect their interests.

This brief review of the conditions necessary for wage competition suggests that within an Australian context a significant proportion of firms and employees are in fact subject to the conditions that characterise wage competitive labour markets. Furthermore, enterprise based bargaining, employment and industrial relations legislation and the move to competency based approaches to skills formation, may be seen as increasingly providing a context which satisfies the requirements of a wage competitive labour market. On the other hand, however, almost half of the workforce are members of unions and are employed by firms large enough to develop internal labour markets.

(b) Towards an Alternative Labour Market Model. The existence of a non-wage competitive labour market was seen both within the job competition and segmented labour market perspectives to be characterised by the existence of internal labour markets or mobility chains. Acceptance that internal labour markets play a significant role in the Australian labour market therefore requires an acceptance of either a job competition or a segmented labour market model.

Martin Carnoy's segmented view of the labour market is unique in that it provides a theoretical framework within which internal labour markets (and therefore job competition) may be integrated with a wage competitive view of the labour market. Carnoy argues that technology has produced a reserve army of unemployed which creates wage competitive conditions for some while internal labour markets and the existence of mobility chains create better employment opportunities and conditions for others. As a consequence, segmented labour market theorists advocate government intervention which is supportive of the creation of better jobs, increased productivity and a more equitable earnings distribution through a much broader range of policies

and strategies than advocates of wage competition perspective. These strategies include taxation and incentives policies, prices and incomes policies, marketing and technology strategies, as well as the promotion of workplace reform such as participative decision making and multi-skilling. Some human resource management practitioners and researchers in fact advocate the active creation of internal labour markets because they can improve productivity by promoting flatter management structures and participative decision making. The competitive successes of large enterprises in the Japanese economy are frequently held up as an example of the benefits of internal labour markets.

To Sum Up

The analysis presented in this paper has examined the relationship between increased education retention rates and both economic growth and the earnings distribution. Six education - labour market scenarios were presented as a way of demonstrating that an effective investment in increased education retention rates requires that two conditions be satisfied. First, additional years of education must be effective in increasing the level of human capital in the workforce. Second, the labour market must provide appropriate opportunities for the enhanced abilities of the workforce to be used in the workplace.

While the requirements of an effective education strategy are relatively consistent across all three labour market perspectives, there are stark differences between these perspectives in terms of their view on how best to promote appropriate employment opportunities. One school of thought would advocate labour market strategies that seek to satisfy the requirements of wage competition: a large number of competing buyers and sellers; competency based training and skills specification within an appropriate legislative framework. An alternative school of thought would suggest that the existence of for example: internal labour markets; unions and monopoly capital; and a reserve army of unemployed and underemployed workers; means that the labour market can not adequately be understood within a wage competitive model.

The differences between wage competition and the alternative labour market perspectives are significant, as are the policy implications. The current pace of change, within both the education system and the labour market, suggests that there is a need for a thorough investigation of the costs and benefits of increased education retention rates to be undertaken. This paper has sought to demonstrate that this investigation should take place within a framework that acknowledges the possibility of credential inflation and recognises the alternative labour market perspective canvassed in this paper.

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