

Developing the Next Generation: Employer-Led Channels for Education Employment Linkages^{*}

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Abstract

In 2007, the Foundation for Research, Science and Technology in New Zealand announced that it is providing \$2 million of funding for a 5 year research programme on successful education employment matching for youth. This paper introduces the overall research programme, and then explains a recent development in the economics literature on education employment linkages that will be an important guiding principle for the research team. It finishes with a description of the research that will be devoted to understanding employer-led channels in the overall system of helping young people make good education employment linkages.

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Developing the Next Generation: Employer-Led Channels for Education Employment Linkages

1. Introduction

The education employment linkages (EEL) research programme is a five-year research programme on successful education employment linkages for youth in New Zealand, funded by the Foundation for Research, Science and Technology (see www.eel.org.nz). It brings together research strengths in the AERU research unit at Lincoln University, the New Zealand Council for Educational Research and He Pārekereke at Victoria University of Wellington. The programme is motivated by previous research by the four members of the research team that identifies serious problems experienced by young New Zealanders preparing for employment.

- Dr Karen Vaughan leads the New Zealand Council for Educational Research *Pathways and Prospects* study, which is following over 100 young people in their first four years after leaving school (Vaughan, 2005; Vaughan et al, 2006). This study has found that, in the first months of choosing a post-school pathway, many young people feel they have not received enough good guidance at school to make their decisions. A year later, many remained confused about how to get help.
- Dr Jane Higgins co-led the Marsden Fund *In Transition* project, which identified similar concerns among another group of over 100 young people as they left school (Higgins and Nairn, 2006). Apart from a minority who had made an early career choice, these young people did not find the careers information provided for them helpful in their choice-making. The majority found it confusing to be faced with so much information and so many apparent choices; few were able to make judgements about the quality of the material they encountered.
- Dr Hazel Phillips's PhD thesis at the University of Canterbury highlighted the particular difficulties young Māori students experience after leaving school (Phillips, 2003), a finding that is confirmed in the polytechnic sector by a PhD student under her supervision. Her research is consistent with the call made at the Hui Taumata (2005, p. 13 and p. 14) for Māori and educationalists to take responsibility for factors that are currently holding back rangatahi, with 'improving career advice to support lifelong employment and employability' identified as a key component.
- Professor Paul Dalziel leads the AERU Regional Development programme at Lincoln University. Two studies within that programme identified specific difficulties reported by high-tech electronics and software industries in raising their profile among secondary school pupils, leading to lost high productivity employment opportunities for local young people (Saunders and Dalziel, 2003 and 2006).

The Labour Market Dynamics Research Programme led by Professor Paul Spoonley at Massey University has reported that 43 per cent of people aged 15-34, and 46 per cent of Māori in this group, feel their current job is not very closely related or not related at all to their educational qualifications (Dupuis et al, 2005; Cunningham et al, 2005). These figures imply a high social cost, since international studies reveal that successful education employment matching raises individual earnings for many years. A British study of graduates reported an earnings premium of between 8 and 20 per cent six years after graduation (Battu et al, 1999). An Israeli study of vocational education found that successful matching can increase annual earnings by up to 10 per cent (Neuman and Ziderman, 1990). A more recent Australian study reported returns to required education, if correctly matched to employment, of 18.2 per cent for men and 14.9 per cent for women (Voon and Miller, 2005).

The OECD recently completed a comprehensive summary of youth transitions in New Zealand, which concluded that ‘the recent performance of the youth labour market in New Zealand is very good compared with many other OECD countries’ (OECD, 2008, p. 9). Nevertheless, it too highlighted some weaknesses: a hard-core of youth at risk of poor labour market outcomes and social exclusion; not enough people pursuing vocational studies despite excellent labour market prospects in many trade professions; some tertiary institutions not providing youth with the right skills; and difficulties in reaching young people who disengage from school at an early age (pp. 9-10).

New Zealand policymakers are well aware of the importance of issues such as these, and the government invests heavily in helping young people make education employment choices during their transition years. Schools, for example, must ‘provide appropriate career education and guidance for all students in year 7 and above’ (NAG, 2006, No. 1 vi). Policy initiatives include the www.in-transit.govt.nz website, the Gateway programme, Designing Careers, the Secondary-Tertiary Alignment Resource (STAR), Youth Transitions Services, He Ara Rangatahi, a \$12.7 million boost to Career Services in the 2006 Budget, and the CPaBL programme. Earlier this year, the government published a policy document inviting public feedback on *Schools Plus*, a major development involving eleven Ministers (Ministry of Education, 2008). The vision for *Schools Plus* is very broad: ‘transforming secondary schooling to encourage young people to stay and compete qualifications, and strengthening partnerships between schools, tertiary education organisations, employers, industry training organisations and non-government organisations to extend the learning opportunities available to students, and to connect young people to their next steps beyond school’ (Ministry of Education, 2008, p. 1)

Despite the number of agencies involved, despite the scale of public investment in these policies, and despite the policies’ strategic importance for both individual well-being and New Zealand’s national goals, there hasn’t previously been a research programme specifically devoted to understanding and improving education employment linkages by young New Zealanders. The EEL research programme seeks to fill this gap.

This paper has three purposes. The first is to introduce the overall research programme. This is achieved in the following section which sets out the programme’s research aims and objectives, and describes the methods by which the research will be carried out over its five years. The second purpose is to explain a recent development in the economics literature on education employment linkages that will be an important guiding principle for the research team. Thus section 3 describes the standard model of

human capital investment that has been at the core of economic research in this area, and section 4 explains how more recent papers have adopted dynamic choice modelling techniques to understand youth transition. The third purpose is to describe the research that will be devoted to understanding employer-led channels in the overall system of helping young people make good education employment linkages. This is undertaken in section 5. The paper finishes with a brief conclusion in section 6.

2. The Research Programme¹

The aim of the research programme is to answer the question: How can formal support systems best help young New Zealanders make good education employment linkages to benefit themselves, their communities, and the national economy? To achieve this aim, the programme has four core objectives, each headed by an objective leader:

1. To research and deliver new knowledge about effective systems in school communities for helping young New Zealanders make good education employment linkages (Karen Vaughan).
2. To research and deliver new knowledge about effective systems in regional communities for helping young New Zealanders make good education employment linkages (Jane Higgins).
3. To research and deliver new knowledge about effective systems in Māori and Pacific communities for helping young New Zealanders make good education employment linkages (Hazel Phillips).
4. To research and deliver new knowledge about systems for conveying the needs of employers to young New Zealanders, in order to improve education employment linkages (Paul Dalziel).

The research programme is built on the ‘individual career management’ paradigm that has emerged as the new standard of international best practice in this field (Jarvis, 2003, 2006; Bezanson, 2005; OECD, 2004a, 2004b, 2006; ISCDPP, 2006). This places the individual choice-maker at the centre of career management systems, based on strong international evidence that education employment matching is helped by good career development education (Bysshe et al, 2002; Hughes et al, 2002; Bowes et al, 2005; DEST, 2005; Smith et al, 2005; Bimrose, 2006; Department for Education and Skills, 2006). The young individual choice-maker does not make choices in isolation, of course, but encounters systems of support outside his or her immediate family. This is recognised in the four objectives of the research programme, which focus respectively on secondary school communities, on regional communities, on Māori and Pacific communities, and on employer-led channels.

Table 1 presents the major elements of the programme, which are integrated across the four objectives. The objective leaders have begun by working together on a cross-disciplinary literature review to place the research in its international context. This will be followed by collaborations in primary research over three years. The final phase of the project will involved two pilots of best practice systems, assessing the integrated results of the four research streams in each pilot site.

¹ The material in this section is drawn from Dalziel et al. (2007).

Table 1: The Elements of the Research Programme

	Objective 1 (K. Vaughan)	Objective 2 (J. Higgins)	Objective 3 (H. Phillips)	Objective 4 (P. Dalziel)	
<i>1. International Context</i>	Integrated international literature review drawing on: Education Sociology Indigenous Studies Economics				
<i>Primary Research</i>	<i>2. What is happening?</i>	Mapping of current education employment systems in: School Communities Regional Communities Māori & Pacific Communities Employer-Led Channels			
	<i>3. Why is it happening?</i>	Interviews, surveys and focus groups of key informants in: School Communities Regional Communities Māori & Pacific Communities Employer-Led Channels			
	<i>4. How can we make it different?</i>	Case studies of how positive outcomes occur in: School Communities Regional Communities Māori & Pacific Communities Employer-Led Channels			
<i>5. Integration and Assessment</i>	Two pilots of best practice systems, assessing in each pilot site the integrated results of the four research streams.				

Phase 1 has adopted the ‘systematic literature review’ method (Hughes et al, 2005; Smith et al, 2005) to determine what is already known internationally about youth education employment linkages. Conceptual frameworks identified in this review will inform analysis in each subsequent stage. Phases 2 and 3 will include content analysis of documents, population and sample surveys, semi-structured interviews, and focus groups. Phase 4 will involve three case studies in each objective, using intensive qualitative research tools to explore how positive outcomes are being achieved. In the final stage of the programme, Phase 5, the research team will choose two diverse sites where key stakeholders in local secondary school communities, in the wider local community, in local Māori and Pacific communities, and in local employer organisations, are willing to trial improved systems for better education employment linkages by young people. These pilots will integrate, apply and disseminate the new knowledge produced in the programme, thus meeting the overall research aim.

The design of the research programme has been guided by Blaikie’s (2000) text. It moves from a literature review (what do we already know?), to exploration and description (what is happening?), to understanding and explanation (why is it happening?), and finally to prediction and change (how can we make it different?). Suitable research methods are adopted for each question. The approach taken to address the last two questions, for example, combines abductive and retroductive strategies (Blaikie, 2000, Chapter 4). Abductive strategies are important for understanding the choice-making of the young people at the centre of the research (Higgins and Nairn, 2006; Vaughan et al, 2006), while retroductive strategies aid understanding of how systems can influence those choices (Dalziel, 2001).

As noted above, the key research question is: How can formal support systems best help young New Zealanders make good education employment linkages to benefit themselves, their communities, and the national economy? These support systems are conceptualised as ‘human activity systems’ (Checkland, 1981) with four primary sites of engagement: school communities; regional communities; Māori and Pacific communities; and employer-led channels. The design of research methods has paid particular attention to two dimensions that the team thinks are particularly important for social scientists embarking on a new programme of policy oriented research:

1. *Cross-disciplinary collaboration.* Each phase of the research is designed to move beyond co-operation (working together for individual ends) to achieving genuine cross-disciplinary collaboration among the key researchers (working together for a common end). Jeffrey (2003) notes that collaboration requires explicit planning and resources, and identifies four tools for collaboration: the development of a common vocabulary, the use of metaphor as an aid to understanding, the contribution of each discipline to the creation of common narratives within the project, and awareness of the forms of dialogue being utilised within the team. The budget provides for four meetings of the research team each year. Integration of disciplinary perspectives will be achieved at these meetings, using tools such as those listed above, to achieve what Jeffrey calls the products of collaboration: process, understanding, utility, and knowledge integration. This reflective process will culminate in year 5 with an article analysing how the team’s education, sociology, indigenous studies and economics perspectives were integrated in the programme’s cross-disciplinary collaboration.

2. *Research validity.* The programme approaches research validity in terms of Cresswell and Miller’s (2000) lens of the researcher, lens of the research participants, and lens of people external to the research. Each lens represents a viewpoint from which validity may be established. Different lenses of validity can be relevant at different stages of the research. In Phase 2, for example, the research will produce system maps to which no individual currently has access, and so the lens of the researcher is appropriate to identify when the maps are adequately drawn. In this case, validity will be achieved by using population surveys and expert informant interviews. A combination of researcher and participant lenses will be used in later phases, adding the tools of member checking (taking data and its interpretation back to research participants), prolonged engagement in the field by the researchers (particularly in the case study and pilot stages) and collaboration in the analysis of data with participants. Validity of the overall project will be addressed through the lens of people external to the study, made possible by the research team’s collaboration with an external reference group of policy end-users and through the programme’s links with four international experts.

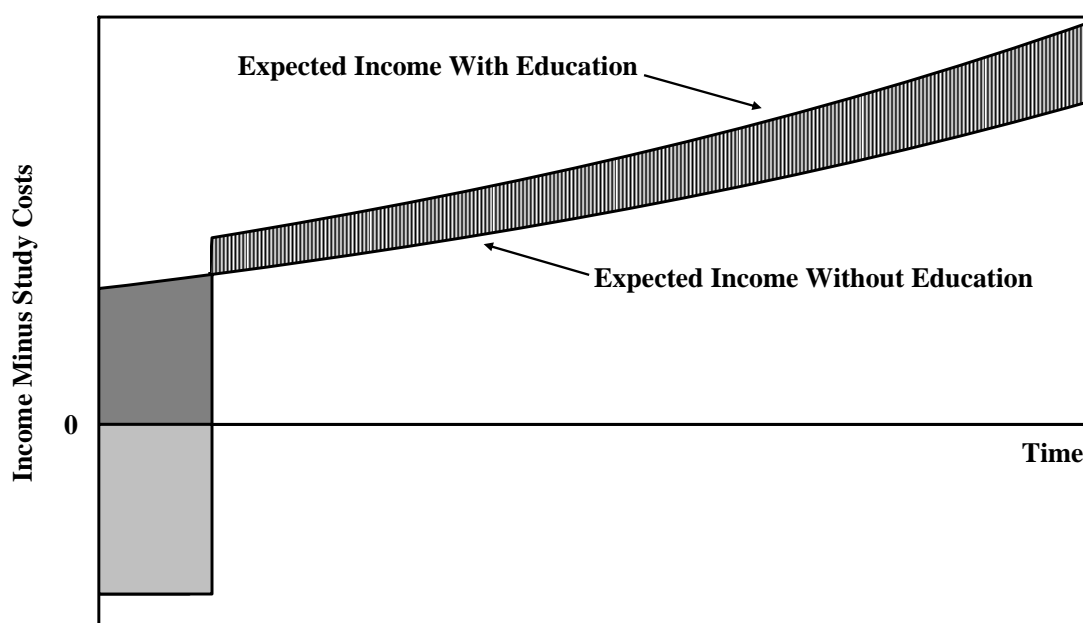
3. The Traditional Economics Model of Human Capital Choices

Economics is based on the study of choices. Following the foundational contributions of Theodore Shultz (1961) and Gary Becker (1962, 1964), education choices have been typically modelled by economists as investment decisions, in which individuals make economic sacrifices in order to invest in acquiring ‘human capital’.² Figure 1 illustrates

² Recent reviews of this literature include Harmon et al. (2003), Sianesi and Van Reenen (2003) and Tobias and Li (2004), all in the *Journal of Economic Surveys*.

a simple example to introduce the main elements in the human capital model. The figure draws two stylised time series of an individual's net income (that is, after paying taxes and study costs) over their working life. The first time series records the person's expected after-tax salary each year, assuming that the individual chooses not to enrol in any further study. The second time series begins with a period of negative values, during which the individual is engaged in full-time study. During this period, the person is not earning a wage and is paying tuition and other costs of study. Once the person graduates, however, he or she will expect to earn a higher income than someone who has not studied.³

Figure 1
Costs and Benefits of Education



In this example, the expected benefits of education are represented by the vertically shaded area showing the difference between the expected incomes with and without education after graduation. There are two costs of the investment in education: the fees and other costs of study (the light shaded area); and the opportunity cost of foregone income during the period of education (the dark shaded area). A necessary condition for a person to choose education as an investment good is that the net present value of the benefits is not less than the net present value of the costs.⁴

³ Building on this idea, some researchers have sought to estimate the size of a country's human capital stock using the discounted present value of expected lifetime labour market incomes (using, for example, census data). Le, Gibson and Oxley (2003) have followed this approach using New Zealand data, and report a value of \$842.9 billion in 2001 (an increase of 51.2 per cent on the figure for twenty years earlier).

⁴ Net present value is a standard technique used by economists to compare costs and benefits that occur at different times.

It is not a sufficient condition, however, since there may be other constraints that prevent an individual from making their preferred choice. In the above example, people who choose education must survive a period when their net income after study costs is negative. If young people have no access to credit or savings, they may be constrained in their choices to those paths in which net income is always positive, and so will not be able to enrol in study even if the net present value of the benefits is greater than the net present value of the costs. This analysis provides part of the economic case in favour of a government-sponsored student loans scheme for post-compulsory education, although it must be said that the United States evidence suggests that credit constraints do *not* affect the choice to enrol in post-compulsory education (Keane and Wolpin, 2001; Cameron and Taber, 2004).

Another potentially important constraint is access to information, perhaps mediated through family influences and neighbourhood networks that often reinforce each other. Gaviria (2002, p. 331) captures the flavour of the literature on family background as follows: 'If one were to summarize the main message of the massive scientific literature dealing with family influences, a single line would suffice: it pays to choose one's parents.' Ludwig (1999, p. 17) summarises his own research project on this topic as follows:

All adolescents seem to implicitly underestimate the educational requirements of their occupational goals, and teens (particularly males) in high-poverty urban areas have less accurate information than those in other neighborhoods. Information varies across neighborhoods in part because of the effects of family socioeconomic status on information, including the education and employment experiences of parents.

A characteristic of this theoretical approach is that it models a *single* choice being made at a *single* key moment in the young person's transition into the labour market. The model can allow for the choice to take some time to be finally settled, but the essence of the approach is that at some moment the choice-maker calculates the benefits and costs of further investment in education and on the basis of that calculation makes a final rational choice (recognising multiple family and social influences on the individual's underlying preferences).

Such a model has important implications for career guidance in secondary schools. If our understanding is that sometime before the age of 18 (say) most young people will have made their career and related education choices, then it is sensible for career advisors in schools to focus on providing students with as much information as possible to help them make that choice. Borghans et al (1996, p. 71) summarise the problem well when they observe in a Dutch setting: 'On the one hand, the labour market is very complex, while on the other hand students who have to make their educational choice are rather inexperienced, and make such choices only a few times during their career.' The authors recommended from their study that better labour market information should be provided to students, including professional forecasts of the future labour market situation of different vocational specialisations.

Last year, the New Zealand Council for Educational Research published a report on careers education in secondary schools (Vaughan and Gardiner, 2007). Among other things, the project asked careers staff in schools to indicate how important they considered a series of different careers activities. Nearly every activity was rated as important or very important/vital, but the three activities that rated the highest (scoring 75 per cent or higher in the top category) were: students get advice on subject options

related to careers; students gather or are given information about tertiary study and employment; and students are interviewed or counselled one-to-one about careers (Vaughan and Gardiner, 2007, p. 39). These results are consistent with the model just described, and fit in with its implication that advisors should help students make good choices by providing them with good information and advice.

As noted earlier in this paper, there has been a paradigm shift in the international literature on careers guidance. This shift is reflected in a move towards a new name for people working in careers guidance from 'careers advisors' to 'careers educators'. This new paradigm puts less emphasis on providing information and advice *to* students in favour of teaching students *how* to access information for themselves and to develop their own career planning skills. This paradigm shift in the careers guidance field parallels an interesting and important shift in the economics approach to modelling education employment choices, which is the subject of the next two sections.

4. The New Economics Model of Human Capital Choices

A feature of the model in section 3 is that the decision to invest in human capital is considered as a single choice made at a moment in time. More recently, models have been produced that treat human capital decisions as sequential choices, repeated year after year. These models recognise that people do not make a unique choice to undertake a certain level of lifetime investment in education, but every year weigh up their options about education and employment.

A major breakthrough in this line of enquiry came with the stochastic dynamic programming model of Keane and Wolpin (1997), which Belzil (2007, p. 1076) has described as 'most probably the most important contribution to the empirical schooling literature since Willis and Rosen (1979)'. In the model, each individual makes an education or employment choice every year beginning at age 16, with five alternatives: (1) participating in education; (2) working in a white-collar occupation; (3) working in a blue-collar occupation; (4) working in the military; or (5) engaging in home production. The model allows for a number of contributing factors such as: skill depreciation; experience in the first year of a new occupation; age effects; high school and college graduation effects; additional costs from changing occupations; non-pecuniary rewards in different occupations; consumption value of being at school, which varies with age; costs of returning to school after dropping out; age effects on the benefits from remaining at home; extra psychic benefits from completing a high school or college diploma; and an additional costs of leaving the military prematurely. The authors report that this extended model does a good job of fitting data gathered in the United States from the youth cohort of the National Longitudinal Surveys of Labor Market Experience (NLSY).

The mathematics and econometrics required to solve and estimate the model are very advanced. In a related paper, for example, Eckstein and Wolpin (1999) investigated factors influencing the decisions of young people to drop out of school, including the potential impact of part-time employment while at school. In that sequential choice model some youths choose to drop out after solving the following equation:

$$\begin{aligned}
 V_t^k(S_t) = & U_t^k + \beta \left[\sum_{c=0}^5 \sum_{g=0}^4 \pi^s(c_t, g_t | S_t, d_t^k = 1) \right. \\
 & \times \{ I(t < 5, e_{t+1} < 12) E[V_{t+1}^2(S_{t+1}) | d_t^k = 1, S_t] \\
 & + I(t = 5, e_{t+1} < 12) E[V^1(S_{t+1}) | d_t^k = 1, S_t] \\
 & \left. + I(e_{t+1} = 12) E[V^D | d_t^k = 1, S_t] \right]
 \end{aligned}$$

Nobody presumes that early school leavers can solve equations of this type, but the mathematics expresses the underlying assumption that different students make different choices year by year because of the different sets of constraints and opportunities open to them at any point in time. The main result from the empirical analysis in this paper, for example, was that ‘youths who drop out of high school have different traits from those who graduate – they have lower school ability and/or motivation, they have lower expectations about the rewards from graduation, they have a comparative advantage at jobs that are done by nongraduates, and they place a higher value on leisure and have a lower consumption value of school attendance’ (Eckstein and Wolpin (1999, p. 1335).

A separate branch of the economics literature models sequential choices based on only two or three periods (rather than the yearly analysis of the above papers), but adds the key idea that one of the main functions of education is to enable students to discover more about their individual interests and abilities. An early expression of this idea was made by Manski (1989, p. 305):

Now consider a student contemplating enrollment. At this point, the student does not know whether he has the ability to complete the program under consideration. Nor does he know whether he will find it worthwhile to do so. The only way the student can definitively determine whether schooling is for him is by enrolling. Thus, the decision to enroll is a decision to initiate an experiment.

Two early models to incorporate this key idea were by Altonji (1993) and Weiler (1994). Both models allowed for two sequential decisions. In the first decision, individuals choose whether to go on to higher education. During their undergraduate studies, they discover more about their abilities, their interest in study relative to work, and the costs and benefits of further study. These discoveries inform their second decision, which is whether to continue with their initial study plans.

More recently, Arcidiacono (2004) has created and tested a more sophisticated model of post-compulsory education choices that is comprised of three periods. In the first period, individuals choose either to enter the labour force or go to college. If they choose to go to college, they choose the quality of the college (measured by the average SAT scores of its students) and one of four aggregate majors: natural sciences; business; education; and social science/humanities/other. At the end of the first period, the students get feedback on their abilities through grades on their studies. In the second period, individuals at college decide whether to drop out and enter the labour force or to continue their education for one more period. If the later, they again choose their college and major (this may be changed or not from their previous decision). In the third period, the individuals enter the labour force and earn income dependent on their qualifications and abilities.

Individual abilities are modelled as having measured and unmeasured components. The measured components are the math and verbal scores for the SAT Reasoning Test used by colleges as part of the admissions process in the United States. The unmeasured abilities include generic abilities to undertake college study and specific abilities to study for particular majors. Individuals (and ultimately employers) learn about these abilities by looking at the grades received in college study. The model assumes that the individual's enjoyment of education is related to how different is the individual's ability compared to the average ability of classmates. The relationship is assumed to be quadratic, so that it is more costly for a low ability individual to go to a high quality college than for a high ability individual to go to a low quality college. This assumption produces an equilibrium in which high ability students tend to go to high quality colleges and low ability students tend to go to low quality colleges.

In the model, the expected earnings of an individual depend on the quality of college chosen, the major chosen, the individual's measured math and verbal abilities, the individual's expected grades depending on which school and which major are chosen, and other relevant individual characteristics such as gender. As well as expected earnings, the individual also enjoys some types of work more than others depending on their relative abilities and other individual characteristics. This flows over to their preferences for particular majors, again conditioned by relative abilities and individual characteristics. Thus a person who has a low math SAT score may want not to enrol in a math-intensive major, nor work in a math-intensive job, beyond the fact that it would be harder to succeed in the major or job given their poor math skills.

The mathematics and econometrics in the paper are again very sophisticated, but the basic point has been made. Individuals are assumed to be endowed with abilities (measured and unmeasured) relative to their peers and these abilities frame their education and employment choices, directly through their preferences for particular types of work and indirectly through expected earnings from different choices. As they learn more about their unmeasured abilities, the individuals may choose to change their education choices.

This is an exciting area of research, which incorporates into the human capital model insights from two other branches of the economic literature. First, it draws on the signalling model introduced by Spence (1973, 1974) which develops the idea that qualifications allow highly skilled individuals to signal their ability to potential employers. This is because high ability individuals find education easier, and so choose more education, than low ability individuals. The signalling model suggests there should be an income premium to people who complete a qualification (because of its signalling effect) above the return to the years of education, and there is indeed empirical evidence in support of this 'sheepskin effect' (including for New Zealand; see Gibson, 2000). In his review of the signalling model, Riley (2001, p. 460) explains that this interpretation is challenged if education does provide human capital:

In the human capital model, the productivity of a college graduate is a function of what he has learned at college. This is positively related to his grades and the quality of the college that he attends. Presumably, those who drop out do so because they find the going tough and their grades are low. Thus, the productivity of the dropouts is lower than that of a representative individual from the class. When income is regressed against years of college education plus a "sheepskin" dummy, the latter picks up the difference in the rate of capital accumulation among dropouts and the rest of the class.

Second, the sequential choice model draws on the occupational choice theory initiated by Roy (1951) which reflects the idea that people have different skills which lead them to different occupation choices on the assumption that they are motivated to maximise earnings. Earnings adjust in response to supply and demand, and so a general equilibrium emerges in which people choose the occupation where they have a comparative advantage based on their skills. Heckman and Honoré (1990) is a recent example of Roy's approach which adopts more general assumptions and modern econometric techniques to estimate the model empirically.

What are some of the implications of this new line of economics modelling, especially in contrast to the implications of the previous 'single choice' model? At this stage I would like to highlight four that I think are particularly relevant for the education employment linkages research programme.

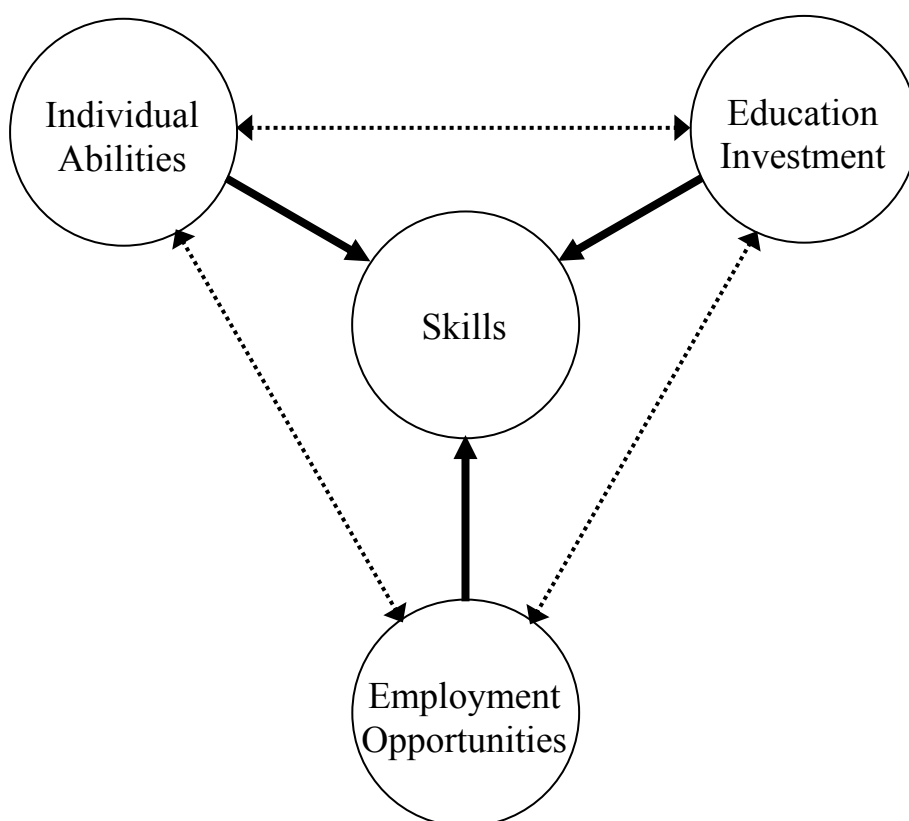
1. *Failure in education need not be a bad outcome.* This was the main point of Manski's (1989) original article. In an entrepreneurial culture, we want people to try new things and to explore their potential interests and abilities. If they learn in the process that they do not have an ability to do well in a particular course of study, then this is important new information in their personal development.
2. *Persistence in failure is not likely to be a good outcome.* Generally students who discover they do not have an ability to do well in a particular course of study should not be advised to persist in their original plans. The new information about their abilities should be reflected in new career plans that build on their comparative advantage in skills. Policies that provide incentives to education institutions to encourage enrolled students to complete programmes may be counter-productive.
3. *Obtaining a qualification without genuine ability may not be a good outcome.* The review by Harmon et al. (2003) draws on work by Chevalier (2003) to suggest that much of what appears to be over-qualifications in the United Kingdom labour force is explained by people having chosen to invest in qualifications that are above their genuine abilities (see also Hartog, 2000). Once employers discover their true potential, these workers are passed over for on-the-job training or promotion, and end up with a considerable discount on their life-time earnings.
4. *Matching qualifications to the right job is the best outcome.* There is strong evidence that 'the effects of finding employment related to one's field of study are substantial' (Grubb, 2002, p. 318; see also Grubb, 1997). This differs depending on how much the skills involved in a field of study are occupation-specific. Robst (2007, pp. 45-46), for example, reports from United States data that individuals who major in business management, engineering, the health professions, computer science, or law face more than a 20 per cent wage penalty for working outside their field of study, but the wage effects are small or insignificant in liberal arts, English, the social sciences and education.

The last two points emphasise the importance of education employment linkages. Robst (2007, p. 406) specifically comments that 'before choosing a major that focuses on occupation specific skills, students should be advised to make sure it is what they wish to pursue in their career [since] the cost to changing careers after getting the degree can be high'. Similarly, Grubb (1997, p. 239) reflects wryly that 'it seems likely that many students are poorly informed about their choices and are mistakenly entering programs where the economic returns are insubstantial'.

5. Employer-Led Channels

The economics literature surveyed in section 4 suggests that successful formation of skills for work opportunities requires effective matching in three dimensions.⁵ The relationships are drawn in Figure 2 below. The individual has innate abilities that are not fully known to the individual, let alone to potential employers. Investment in education allows the individual to explore his or her potential abilities, and to build on them through acquiring increased human capital. To obtain the best return to that investment, the individual then needs to find an employment opportunity that makes use of his or her enhanced abilities. The combination of individual abilities, education investment and employment opportunities creates valuable skills, represented by the three solid lines in Figure 2. To be successful, there needs to be matching between individual abilities and education investment, between the individual abilities and employment opportunities, and between the education investment and the employment opportunities (each represented by the dashed line in the figure).

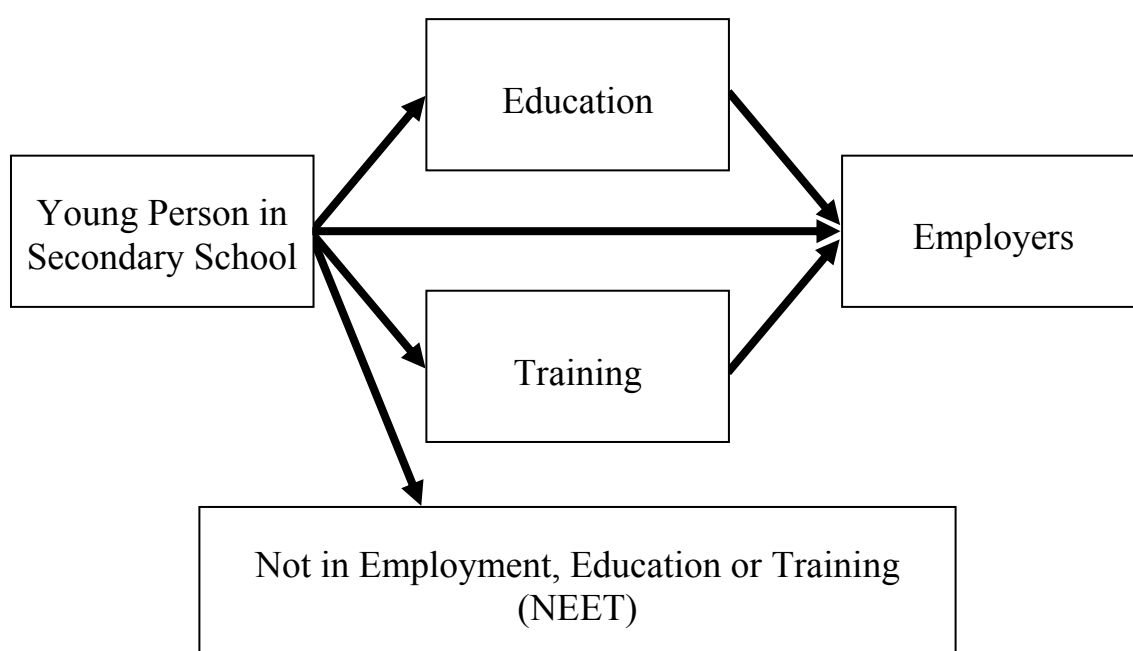
Figure 2
Formation of Skills for Work



⁵ Stasz (2001) offers an insightful discussion on what is meant by the term ‘skills for work’. In particular, Stasz draws a distinction between the ‘individualistic attributes’ approach of economists and the ‘interactive systems or social settings’ approach of sociologists to raise some important questions about changing skill requirements in the labour market.

It is important to emphasise that current economics models treat these relationships as dynamic and uncertain. Employment opportunities are constantly changing as new technologies transform production systems and whole industries. There is a wide range of education institutions offering qualifications with a large variance in learning quality and relevance for employment. Individuals can discover their full potential abilities only by exploring different possibilities. This is a life-long process, far removed from the old assumption that most young people will have made their career and related education choices before the age of 18.

Figure 3
School-to-Work Transitions

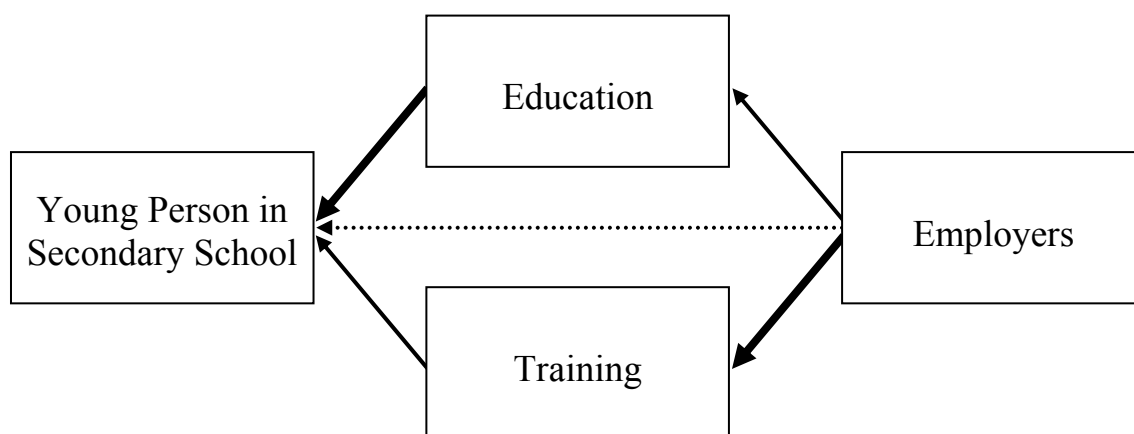


It is also apparent from Figure 2 that people wanting to form valuable skills for work need information about employment opportunities. How do people obtain this information? In particular, how do young people still at secondary school obtain knowledge about employment opportunities and the associated requirements for investment in further education? This is a focus of the Education Employment Linkages research programme, with one of its objectives devoted to understanding employer-led channels.

A stylised framework to begin this research objective is presented in Figure 3. It is 'stylised' because simple linear transition pathways such as those depicted in the figure are not as common for the modern generation of young people as they once were. Nevertheless, the figure captures key components of the youth transition system, starting with young people in secondary school. On leaving school, they might choose to enrol in further 'education' (leading to degree qualifications) or in further 'training' (leading to a vocational qualification). They might also move directly into employment, or move under the heading of 'not in employment, education or training'.

For the remainder of 2008, objective 4 of the EEL research programme will attempt to trace out the architecture of current employer-led channels of information to young people in transition. The research will begin with the primary peak organisation for employers, Business New Zealand, as well as local Chambers of Commerce and Industry Associations. This will be followed by other employer-related organisations, including the Industry Training Federation, Industry Training Organisations, the Federation of Māori Authorities, the Pacific Business Trust, the Council of Trade Unions, the Youth Union Movement, the Economic Development Association of New Zealand and regional economic development agencies. Finally, the research will extend to education and training institutions, including the New Zealand Vice-Chancellors Committee, Institutes of Technology and Polytechnics New Zealand, the country's three registered wānanga, and peak organisations of private training enterprises (NZAPEP, AMPTE, PITPONZ and ITI).

Figure 4
Employer-Led Channels



As well as tracing out the architecture of the system, this research will begin gathering evidence to test a number of hypotheses about the relative strengths of the linkages between different parts of the system. These hypotheses are illustrated in Figure 4.

1. *Linkages between employers and training institutions are strong.* The Industry Training Federation has a statutory obligation to provide leadership in the formation of skills for work, and it is hypothesised that this has created relatively strong linkages between employers and training institutions. The Skills New Zealand Tripartite Forum, for example, brings together government Ministers and officials, Business New Zealand, the New Zealand Council of Trade Unions and the Industry Training Federation to develop and implement a skills strategy for New Zealand (see its website at www.skillsstrategy.govt.nz). The involvement of Institutes of Technology and Polytechnics in leading the regional facilitation programme of the Tertiary Education Commission is likely to have reinforced these linkages (see the website at www.tec.govt.nz/templates/standard.aspx?id=483).

2. *Linkages between employers and education institutions are not strong.* Over the last decade, there has been a marked increase in the engagement of New Zealand universities with regional and national industries. Nevertheless, there is an often-repeated view that universities do not have as links with local employers that are as strong as their counterparts in the training sector. In part, this situation may reflect the distinctive contribution universities make to New Zealand's tertiary education system, which includes wider roles such as contributing to international research excellence and acting as critic and conscience of domestic society.
3. *Linkages between education institutions and young people in secondary schools are strong.* Universities devote substantial resources to liaison with secondary schools. They provide career guidance offices of schools with large amounts of promotional material, organise functions and seminars for school teachers, host campus visits for school pupils, and arrange school visits from university academic and support staff. One of the research questions that the education employment linkages programme would like to explore is how much of this material is quality assured (particularly with respect to any claims made in it of employment opportunities arising from gaining the provider's qualifications).
4. *Linkages between training institutions and young people in secondary schools are not strong.* The OECD (1998) New Zealand country report on *Jobs for Youth* reported that 'not enough young people pursue vocational studies despite excellent labour market prospects offered by many trade professions' (p. 9). A factor that might contribute to this observation is if training organisations do not have the same resources or access for communicating with young people in secondary schools as do the education institutions.
5. *Linkages between employers and young people in secondary schools are weak.* If the hypotheses in (3) and (4) turn out to be supported by the evidence, then it is possible that the dominance of education and training institutions in supplying schools with promotional material may mean that direct linkages between employers and young people in secondary schools are relatively weak. It is also possible, however, that web-based resources being created by Career Services (see www.careerservices.govt.nz) are having the opposite effect, making it easier for young people to access reliable information about post-education employment opportunities.

The data gathered in this workstream in 2008 will lay the foundations for deeper analysis at a regional and industry level in 2009. The intention in 2009 is to complete studies in each of the ten regional labour markets defined by the Department of Labour. Census data will be analysed to identify a nationally important occupation (or groups of occupations) in each region. The research team will conduct semi-structured interviews with significant employers of those occupations to determine how they perceive their expectations could be channelled to young people. The team will also interview the local Regional Labour Market Knowledge Managers about the role they could play, and explore suggested channels with key informants in the tertiary education sector. The analysis of this research material will reveal new knowledge about what makes for effective channels of communication from employers to young people about occupation requirements.

6. Conclusion

This report has introduced the education employment linkages (EEL) research programme, selected for funding by the Foundation for Research, Science and Technology in 2007 under its *Building an Inclusive Society* portfolio. The aim of the research is to answer the question: How can formal support systems best help young New Zealanders make good education-employment linkages to benefit themselves, their communities, and the national economy? One of the four objectives in this research programme focuses specifically on employer-led channels for conveying information about employment opportunities to young people in secondary schools. The importance of these channels is based on a view that it is the successful combination of individual abilities, education investment and employment opportunities that creates valuable skills, as shown in Figure 2 of this paper. The research team have drawn up five hypotheses about the strength of linkages between young people in secondary schools, training institutions, education institutions and employers, which taken together would suggest that employer-led channels of information to young people are weak in New Zealand. The direct channel may be the weakest of all current sources of information, while the other channels are weakened because either the linkages between employers and education institutions are not strong or the linkages between training institutions and young people in schools are not strong. Evidence to test these hypotheses will be gathered in 2008, with further analysis and research planned in 2009.

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