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The early employment and further education experiences of high school dropouts: a comparative study of the United States and Australia

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Abstract

It is widely recognized that high school dropouts, or early school leavers, often experience difficulty in making the transition from school to productive activities in adulthood, particularly post-school education, training, and employment. This study examines the experiences of high school dropouts from the United States and Australia in the first two years beyond high school. Unlike most studies of school dropouts, we define a school dropout as any student who ever quit high school. By defining school dropouts in this way, we are able to examine not only which students quit high school, but which ones ultimately return and complete high school by earning a regular high school diploma or a high school equivalency. In the United States, at least, a high proportion of high school dropouts ultimately complete secondary school. We go on to compare the post-school education, training and employment experiences of school dropouts who complete high school with those who do not complete high school as well as with high school graduates who never quit school. Our analysis reveals substantial differences in the post-school education and employment experiences of these groups, with school dropouts experiencing much longer periods where they are neither employed nor in post-school education or training. It also reveals differences in the experiences of dropouts in the US compared to those in Australia, with dropouts in Australia more likely to participate in post-school education and training and more likely to settle into productive employment within the first two years of high school. This suggests that dropouts in the US are at a relatively larger disadvantage compared to high school graduates in Australia.

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1. Introduction

There is widespread interest among all industrialized countries in improving the transition from school to working life for young people (OECD, 1996). Because the majority of young people in most industrialized

countries now complete secondary school, this interest has focused particularly on the transition from secondary school to post-high school work and education. As the rate of secondary school completion has grown, so too has concern over that group of young people who fail to complete high school. It is widely recognized that high school dropouts, or early school leavers, experience the most difficulty in making the transition from school to productive activities in adulthood: post-school education, training, and employment. For example, the earn-

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ings of male high school dropouts have been falling in the US relative to the earnings of more educated workers for the last 30 years.¹

One specific concern is how to create viable educational options for dropouts once they leave high school. The US has long had a mechanism for dropouts to earn a high school equivalency through a national examination known as the General Educational Development (GED) test administered by the [American Council of Education \(1999\)](#). The GED is a series of five subject exams in which, beginning in 1997, test-takers had to exceed the performance of at least 67% of traditional graduating high school seniors in order to pass the test. However, states establish their own criteria for using the GED results to issue a high school equivalency certificate in their state.² In 1999, almost 268,000 18–24 year olds received a GED in the US, an increase of 20% since 1990 ([Kaufman, Kwon, Klein, & Chapman, 2000](#), Table C3). But as the number of young people earning a high school equivalency has increased, so too has a debate about its economic value. Some scholars have suggested that the GED does not provide the same economic rewards as a regular high school diploma, while other scholars argue that GED holders fare better in the labor market than other dropouts groups ([Cameron & Heckman, 1993](#); [Murnane, Willett, & Boudett, 1995, 1997, 1999](#); [Murnane, Willet, & Tyler, 2000](#); [Tyler, Murnane, & Willett, 2000](#)).

In Australia, there is no equivalent mechanism to the GED. Dropouts can complete a Year 12 certificate by either returning to high school, a practice that is not common, or, depending on the state, entering a Technical and Further Education (TAFE) College. In recent years, the Federal government has implemented major changes to income support arrangements to encourage dropouts to return to school or to participate in full-time education and training. Several measures were introduced including the requirement that young people under 18 years generally be in school or full-time education or training to receive financial assistance. These changes were based on the belief that there are substantial economic benefits to completion of Year 12 or similar forms of education and training.

This study examines the experiences of high school dropouts from the United States and Australia in the first

two years beyond high school.³ Unlike most studies of school dropouts, we define a school dropout as any student who ever quit high school. By defining school dropouts in this way, we are able to examine not only which students quit high school, but also which ones ultimately return and complete high school either by earning a regular high school diploma or a high school equivalency certificate. In the United States, at least, a high proportion of high school dropouts ultimately complete secondary school. We go on to compare the post-school education, training and employment experiences of school dropouts who complete high school with those who do not complete high school as well as with high school graduates who never quit school. Our analysis reveals substantial differences in the post-school education and employment experiences of these groups, with school dropouts experiencing much longer periods where they are neither employed nor in post-school education or training.

2. Data and methods

2.1. Data

The analysis is based on comparable longitudinal surveys in both countries. The US data were drawn from the *National Educational Longitudinal Survey of 1988* (NELS), a longitudinal survey of 25,000 grade 8 students in the United States begun in 1988 that was also designed to provide policy-relevant information on young people's education, training, and transition to adulthood ([Carroll, 1996](#)). NELS base year data were collected in 1988 and follow-up data were collected on a subset of base-year respondents in 1990, 1992, and 1994 (two years after normal high school completion). Follow-up students were tracked whether they remained in school or dropped out, as long as they continued to reside in the United States. A total of 13,120 students were interviewed in all four survey years. Sample weights were imputed for members of this panel in order to provide an accurate population estimate of the population of the approximately three million 8th graders in 1988.

Australian data used in the study were from the 1975 cohort of the *Youth in Transition* surveys, which are national longitudinal surveys of 10–14-year-olds conducted by the Australian Council for Educational Research. *Youth in Transition* includes four nationally representative cohorts of young people. Each cohort had an initial sample size of over 5500 respondents. The cohorts were

¹ Between 1970 and 1998, the ratio of median annual earnings of all wage and salary workers ages 25–34 with 9–11 years of schooling to median annual earnings of high school graduates declined from 0.73 to 0.80, while the ratio of median earnings for workers with bachelors' degrees increased from 1.24 to 1.56 ([US Department of Education, 2000](#), Table 23–2).

² Some states, such as California, also have their own high school equivalency examination.

³ After beginning this study, the federal government published a descriptive study of US dropouts based on the same data ([Berkold, Geis, & Kaufman, 1998](#)).

born in 1961, 1965, 1970 and 1975. The *Youth in Transition* (YIT) project studies the transitions between school, post-school education and training, and work. Information on the 1975 cohort was collected in annual surveys commencing in 1989. The original sample was selected using a stratified cluster sample design. Sample weights have been calculated to adjust for sampling design and for sample attrition.

The longitudinal surveys are comparable in terms of respondents' level of schooling and their major points of transition from school. While the sample for the Australian data is an age-based cohort rather than a grade-based cohort, as in the US case, approximately 70% of the Australian students were in the same year-level as their US counterparts at commencement of NELS–Year 8 in 1988. The modal year of graduation for both samples was 1992.

2.2. Variables

Several types of variables were used in this study. First, both surveys identified students who had ever dropped out of high school. In NELS, students were identified as ever dropped out both from survey responses (in 1990 and 1992) and from school records during the non-survey years (1989 and 1991).⁴ Because this tracking was done only at certain intervals, however, it probably understates the number of students who actually quit school sometime between the 8th and 12th grades. In the YIT, dropouts were identified from survey responses (1989–1994).⁵

Second, several outcome variables were constructed that reflected the education and labor market experiences during the first two years after the normal completion of high school. This information was taken from the final surveys administered in 1994. In the case of NELS, the 1994 survey took place between the months of February and August, about two years after most students completed high school in June 1992. In the case of YIT, the 1994 survey took place in December, about two years after most students completed high school in November 1992. In order to examine the same period of post-high school activity, we examined post-secondary education and employment activities as of February 1994—18

months after the modal high school completion—for the US data, and as of October 1994—20 months after the modal high school completion—for the Australian data. More specifically, we examined high school completion status, participation in postsecondary education and training, work and employment status as of February or October 1994, the number of months that respondents were working or going to school over the 20 month period from July, 1992 to February, 1994 in NELS or for the 22 month period from January, 1993 to October, 1994 in YIT, and earnings for non-college students.

Third, a series of independent variables was constructed to estimate selection models for months of productive activity (work or school) and earnings. These variables included individual and family background characteristics as well as school experiences as of grade 8. Similar variables were constructed from the two data sets in order to facilitate comparisons between the models.⁶

2.3. Models

In addition to analyzing the outcome variables descriptively, two sets of multivariate models were used to estimate two outcome variables: (1) months of productive activity, and (2) earnings. The models were designed to determine the educational and economic benefits of completing high school. In the case of Australia, where few dropouts ever complete high school, the first set of models estimated months of productive activity and earnings for dropouts and graduates. The earnings models were restricted to persons whose primary activity was not school in order to exclude students who may be working in convenient but possibly low-paying jobs while attending school. In the case of the United States, an initial comparison was made between dropouts and graduates, comparable to the one for Australia. In addition, a second set of comparisons was made between permanent high school dropouts and dropouts who completed high school by either earning a regular high school diploma or by earning a high school equivalency. Selection models were estimated in order to correct for any observed or unobserved differences between the groups. The models took the form:

$$E[y - X \text{ in the sample}] = \beta'X + \theta\lambda,$$

where X is a vector of explanatory variables and λ is the Heckman selection parameter (Heckman, 1979; Maddala, 1983). For the first set of models, λ was computed from a binomial probit model. For the second set of models, λ was computed from a multinomial logit model.⁷

⁴ In NELS, a dropout was defined “as an individual who...according to the school (if a sample member could not be located), or according to the school and home, has not been in school for four consecutive weeks or more and is not absent due to accident or illness; or a student who has been in school less than two weeks after a period in which he or she missed school for four or more consecutive weeks not due to accident or illness” (Ingles, et al., 1994, p. 101).

⁵ In the YIT, a dropout is defined as an individual who reported that they were no longer attending school and the highest year-level they reached at school was Year 11 or less.

⁶ Descriptions of the variables are available at: <http://education.ucsb.edu/rumberger>.

⁷ Models were estimated with LIMDEP version 7.0.

3. Pathways to high school completion

In order to examine the post-school employment and further education experiences of high school dropouts, it is first necessary to identify high school dropouts. Dropouts are most commonly identified as persons who, at a particular point in time, have not completed high school and are not currently enrolled in high school (see Kaufman, Kwon, Klein & Chapman, 2000). The problem with this approach is that it fails to identify students who quit high school sometime during their educational careers even if they eventually complete. Data from the US suggests that a much greater proportion of students quit high school for a period of time than typical dropout statistics reveal. For example, a study of a national cohort of young men who were 14–21 years of age, in 1979, found that 37% had quit high school for at least a three month period although by 1990, when the young men were 25–32 years old, only 14% were classified as high school dropouts (Klerman & Karoly, 1994). In other words, more than 60% of the high school dropouts eventually completed high school. Other studies, too, have shown that a substantial proportion of high school dropouts in the US eventually complete high school (Chuang, 1997; Kolstad & Kaufman, 1989).

Data from the present study support these earlier studies. In the United States, 21% of young adults dropped out of high school some time after the 8th grade (Table 1). This rate is twice as large as the government-reported dropout rate of 11.2% among 16–24 year olds in the United States in 1994 (McMillen & Kaufman, 1997, Table 4), although it is smaller than the rate reported above for an earlier cohort of young men.

The 21% rate for the United States is remarkably similar to the rate of 22% for Australia (Table 1), though this has not always been so. While dropout rates in the US have fluctuated over time, they have been relatively stable over the last two decades (Kaufman, Kwon, Klein & Chapman, 2000). In Australia, however, the rates have fallen sharply since the early 1980s (Lamb, 1994). In 1982, over 60% of young people left school before Year 12. The rates of dropping out fell sharply during the 1980s reaching a low of 22% in 1992.

Although dropout rates are similar between the United States and Australia, the extent to which dropouts eventually complete school varies sharply between the two countries. In the United States, 44% of all dropouts had completed high school by 1994, two years after normal high school graduation (Table 1). The majority of those had obtained a high school equivalency certificate rather than a regular high school diploma. Another 24% said they were enrolled in school or an alternative program that would prepare them to obtain a diploma or equivalent certificate. For the overall cohort, 88% had completed high school by 1994. Thus by 1994, only 12% of the cohort had not completed high school even though

21% of the cohort had dropped out of high school at some point in their secondary career. The difference in these two figures reveals how typical measures of dropout status are unable to identify students who have ever dropped out of high school. The analysis below illustrates why this distinction is important.

By US standards, the rate of high school completion among school dropouts in Australia is very small. Less than 2% of the Australian sample completed high school after dropping out, representing only 8% of all dropouts. For those who do complete a Year 12 high school certificate, about 40% did so by returning to school while the remaining group completed their Year 12 schooling at a Technical and Further Education (TAFE) college. However, the low rate of high school completion for dropouts in Australia in part reflects a different range of post-school opportunities, which we will examine in the next section. Many dropouts in Australia enter TAFE courses (including apprenticeships, traineeships, and other certificate courses) which do not require a Year 12 certificate for entry, even though Year 12 has increasingly become the main point of entry. These forms of training and further education could well be viewed as providing a senior school certificate equivalent. Therefore, the difference between the US and Australia in the rate of high school completion among dropouts may not represent as large a gap as it at first appears.

There were also differences between the two countries concerning when dropouts left high school. In Australia, about half of all dropouts left school at grade 10 and most of the rest left at grade 11. In the US, the majority of dropouts left in grades 11 and 12, with only about one-third leaving in grade 10 or earlier.

4. Opportunities for post-school education and training

Because high school completion is required for entrance to some colleges and most universities, high school dropouts have more limited opportunities to further their education and training beyond high school. That puts them at a competitive disadvantage in the labor market, especially as the skill and educational requirements of many jobs increase over time.

In the United States, young people in the 1994 NELS survey were asked whether they were currently working on any post-secondary certificates or degrees or, if they were not, whether they had already completed any degrees or certificates. The extent of participation in post-secondary education and training varied widely between high school graduates and dropouts. More than three-quarters of students who never dropped out of high school were either working toward or had already completed some form of postsecondary education and training by 1994 (Table 2). In contrast, less than 10% of high

Table 1
High school completion status by dropout status and gender, 1994: United States 1988 grade 8 students and Australian 1988 grade 8 students^a

	Population (percent)	High school completion status, 1994 (percent distribution)				
		Completed diploma	Completed GED	Still enrolled	Not enrolled	Total
<i>United States</i>						
<i>Both sexes</i>						
Never dropped out	79	100				100
Ever dropped out	21	16	28	24	32	100
Total	100	82	6	5	7	100
<i>Males</i>						
Never dropped out	78	100				100
Ever dropped out	22	13	32	23	32	100
Total	100	81	7	5	7	100
<i>Females</i>						
Never dropped out	80	100				100
Ever dropped out	20	18	25	25	32	100
Total	100	83	5	5	7	100
<i>Australia</i>						
<i>Both sexes</i>						
Never dropped out	78	100				100
Ever dropped out	22	8		0	92	100
Total	100	80		0	20	100
<i>Males</i>						
Never dropped out	73	100				100
Ever dropped out	27	7		0	93	100
Total	100	75		0	25	100
<i>Females</i>						
Never dropped out	82	100				100
Ever dropped out	18	10		0	90	100
Total	100	84		0	16	100

^a Source: Tabulations for the United States from the National Education Longitudinal Survey of 1988 based on 8th grade panel from the 1994 third follow-up survey (unweighted $N=13,120$; weighted $N=2,968,426$). Tabulations from Australia from Youth in Transition based on the 1994 follow-up survey (unweighted $N=3213$; weighted $N=25,1407$).

school dropouts who never completed high school had participated in postsecondary education and training. School dropouts who completed high school were more likely than dropouts who did not complete high school to participate in postsecondary education and training, although they were much less likely to do so than those who never dropped out. These patterns did not vary widely between males and females, although female dropouts who never completed high school were less likely than male dropouts who never completed high school to participate in post-secondary education.

The Australian data also reveal differences in patterns of transition to post-school education and training. Young people in the YIT survey were asked about their current education and training activities and about qualifications they had completed at any time up to age 19. This means that the figures can add to greater than 100

as young people have participated in more than one program. The results in Table 3 show that roughly a half of the males who never dropped out had participated in university by the age of 19. The rate was even higher for girls who never dropped out—54%—a rate that, in view of higher completion rates among females, reveals a substantial gender gap in rates of entry to higher education. None of the dropouts who did not complete high school had entered a university by age 19.

Although dropouts do not enter college, they do gain access to other forms of post-school education and training. A relatively large proportion of male dropouts (43%) obtained an apprenticeship. In Australia, entry to apprenticeships has increasingly shifted from Year 10 and Year 11 to Year 12 as school dropout rates have fallen. Despite this, apprenticeships remain a very important source of employment and training for the smaller pool

Table 2

Participation in postsecondary education and training, by high school dropout and completion status and gender, 1994: United States 1988 grade 8 students (percent distribution)^a

	High school dropout and completion status			Total
	Never dropped out	Dropped out, completed	Dropped out, did not complete	
<i>Both sexes</i>				
No postsecondary education or training	24	65	91	36
Currently working toward:	61	21	5	51
License or certificate	3	4	3	3
Associate's degree	18	13	1	16
Bachelor's degree	40	4	1	32
Completed:	15	14	4	13
License or certificate	6	7	1	5
Associate's degree	0	0	0	0
Some postsecondary education	9	7	3	8
<i>Males</i>				
No postsecondary education or training	27	66	88	38
Currently working toward:	56	21	7	47
License or certificate	2	3	5	3
Associate's degree	17	13	1	14
Bachelor's degree	37	5	1	30
Completed:	16	13	5	15
License or certificate	9	6	3	8
Associate's degree	6	7	2	6
Some postsecondary education	1	0	0	1
<i>Females</i>				
No postsecondary education or training	21	63	94	33
Currently working toward:	65	22	2	54
License or certificate	3	5	2	3
Associate's degree	19	12	0	16
Bachelor's degree	43	5	0	35
Completed:	15	15	4	13
License or certificate	9	7	2	8
Associate's degree	5	8	2	5
Some postsecondary education	1	0	0	0
Total	100	100	100	100
Unweighted sample size	10,955	960	1205	13,120

^a Source: Tabulations from the National Education Longitudinal Survey of 1988 based on 8th grade panel from the 1994 third follow-up survey (unweighted $N=13,120$; weighted $N=2,968,426$).

of male dropouts. As a source of training they have remained male dominated, so, relatively few female dropouts obtained an apprenticeship (13%).

Male dropouts also entered other forms of vocational education and training. One in five had participated in a TAFE course other than apprenticeship training. Taken together, this meant that about two-thirds of male dropouts had undertaken some form of post-school education and training by the age of 19. As a result, the percentage of male dropouts who had relied on making a direct entry to the workforce without participating in any post-school education and training was only nine percentage points more than that of teenage males who completed Year 12. This suggests that while university

plays an important role for males who complete Year 12, vocational education and training in Australia is playing a major role in the transitions from school into work of teenage males who do not complete high school.

The role of further education and training is less prominent for female dropouts. Only about one-third (36%) of female dropouts participated in some form of vocational education and training by age 19. For most this was in a vocational certificate or diploma course in TAFE (19%). The lower rate of participation in further education meant that the majority of female dropouts (64%) had not participated in any post-school education and training by age 19. This left most exposed to making a direct entry to the workforce without a senior school

Table 3

Participation in post-school education and training to October 1994, by high school dropout and completion status and gender: Australia* (percent distribution)^a

	High school dropout and completion status			Total
	Never dropped out	Dropped out, completed**	Dropped out, did not complete	
<i>All persons</i>				
No further education or training	28		53	29
Further education and training				
University	51		0	41
TAFE	26		48	30
Apprenticeship	5		28	10
Traineeship	3		4	3
Other TAFE course	19		20	19
<i>Males</i>				
No further education or training	27		36	29
Further education and training				
University	47			35
TAFE	29		66	36
Apprenticeship	11		43	19
Traineeship	2		4	3
Other TAFE course	17		20	18
<i>Females</i>				
No further education or training	28		64	30
Further education and training				
University	54			45
TAFE	23		36	25
Apprenticeship	2		13	3
Traineeship	3		4	3
Other TAFE course	19		19	19
Total	100	100	100	100
Unweighted sample size	2514	59	640	3213

* Activities are not mutually exclusive, therefore, figures may add to greater than 100.

** Sample too small to derive meaningful estimates.

^a SOURCE: Tabulations from Youth in Transition based on the 1994 follow-up survey (unweighted $N=3213$ weighted $N=25\,1407$).

certificate or post-school certificate. For females who never dropped out of high school, less than 30% had not undertaken some form of further education and training by the age of 19.

The rates of participation in post-school education and training among dropouts in Australia display some sharp contrasts with the US. In the NELS data, only about 12% of male dropouts who never completed high school, and 8% of female dropouts, had entered some form of post-school education and training by 1994. In Australia, however, with a comparable sample covering roughly the same period, two-thirds of the male dropouts and over one third of the female dropouts participated in vocational education and training. This supports the view that while more dropouts in the US complete high school or an equivalent certificate, more dropouts in Australia take advantage of post-school vocational education and training opportunities, which serve a similar function.

5. The transition to productive employment

One of the main concerns about high school dropouts is their ability to settle into productive employment. In general, high school dropouts have more difficulty finding stable, productive employment. This can be due to their lack of skills and training, which puts them at a relative disadvantage compared to high school graduates. It can also be due to other non-cognitive attributes that may have caused them to quit school in the first place and hinder their employment prospects, attributes that may be formed through their experiences of school itself. These other attributes may include such things as punctuality, perseverance, and the ability to get along with others, all qualities that employers may look for in their employees (Secretary's Commission on Achieving Necessary Skills, 1991). Longitudinal studies in the US have also noted that while high school graduates also

have some difficulty in securing stable jobs initially after completing school, by their early- and mid-twenties most are working in stable jobs (Klerman & Karoly, 1994). In contrast, high school dropouts continue to experience long spells of non-employment.

In the current study we were only able to examine initial work status for high school dropouts, about two years after normal high school graduation, when most respondents were 19 or 20 years of age. This early transitional period may not be indicative of the long-term prospects for productive employment among youth. Research suggests that the youth labor market is characterized by considerable instability and change as young workers try to find suitable jobs (Johnson, 1978; Klerman & Karoly, 1995; McCall, 1990; Osterman, 1980). Yet, the extent to which youth begins to engage in productive activities at an early age, especially school dropouts, may be indicative of their long-term prospects for meaningful employment.

In this study, we classified young people into four groups based on the primary activity they were engaged in 20 months (US) or 22 months (Australia) after the date of modal high school graduation: (1) those who were working full-time, whether or not they were going to school, (2) those who were going to school, whether or not they were working part-time, (3) those who were working part-time and not going to school, and (4) those who were not employed, either looking for work or out of the labor force. Both of the first two groups can be considered as engaged in productive activities, either working full-time or going to school. Those in the third category are working, but they either cannot find or are not interested in working full-time. Those in the final category are clearly not engaged in any productive activity.

Our data reveal major differences in the initial work status of high school dropouts between the United States and Australia. In the United States, 43% of high school dropouts who never completed school were working full-time two years after high school, 1% were enrolled in school, 11% were working part-time, and almost 50% were not-employed (Table 4). In Australia, dropouts were more successful in obtaining full-time jobs. Nearly two-thirds of the dropouts who never completed high school had full-time jobs at age 19 (Table 4). Males were more successful in gaining full-time jobs than were females (72% as against 56%). At this point in time, 7% of males were enrolled in post-school education and training and working either part-time or not at all. The rate was almost double for females. About one-quarter of the female dropouts and 12% of the male dropouts were not employed. For males most of this group were looking for work (11% unemployed), while for females more than half (12%) were not in the labor force at all. The rates suggest that in this initial post-school period dropouts in Australia are faring better in the pursuit of

employment. This applies to both males and females, though, the contrasting experiences of males and females in Australia highlights some of the reasons why female rates of school completion are higher.

6. Participation in productive activity

The difficulty of high school dropouts participating in post school education and employment is further revealed by examining their activities over time. As mentioned earlier, both the US and Australian data provided information on employment and enrollment status each month following the typical month for high school graduation, which was June 1992 for US students and December 1992 for Australian students. In the case of the US, we examined employment and enrollment status for each of the 20 months between July 1992 and February 1994. In the Australian case, we examined employment and enrollment status for each of the 22 months from January 1983 to October 1994. The main interest was with the amount of time young people were spending in productive activity—either work or study—and hence increasing their human capital. To do this, we counted the total number of months that respondents were either employed and or enrolled in post-school education or training. This provides a very conservative definition of productive activity because respondents who were working part-time were still considered productive. We then estimated selection models for months of productive activity for dropouts and graduates.⁸ The results of these models were then used to estimate the number of months of productive activity for white males in the United States and English-background males in Australia with and without controlling for selection effects. These estimates are shown in Table 5.

In both the United States and Australia, high school graduates show more involvement in productive activity in the first two years following high school than high school dropouts. In the United States, controlling for selection, a randomly selected white male high school graduate would be expected to spend about 19.6 months out of 20 in productive activity, compared to about 14.4 months for a white male high school dropout. According to the selection models (not shown), females and minorities (except Asians) had significantly fewer months of productive activity among both graduates and dropouts, although the relative disadvantage was much more pronounced among dropouts than graduates. The selection coefficient was positive for both groups, suggesting that dropouts were more productive than a randomly selected person in the cohort and graduates were more productive

⁸ The estimates from all the models are available at: <http://education.ucsb.edu/rumberger>.

Table 4

Work and enrollment status, by high school dropout and completion status and gender: United States grade 8 students and Australian 1988 grade 8 students compared (percent distribution)^a

	United States			Total	Australia		
	Never dropped out	Dropped out, completed	Dropped out, did not complete		Never dropped out	Dropped out, did not complete	Total
<i>Both sexes</i>							
Working full-time	33	45	43	35	31	64	38
Enrolled in postsecondary education	9	4	1	7	10	25	13
Not enrolled in school	24	41	42	28	21	39	25
Enrolled in postsecondary education	51	12	1	41	57	9	48
Working part-time	27	6	0	22	31	5	25
Not working	24	6	1	19	26	4	23
Working part-time, not enrolled	8	11	11	9	7	10	7
Not working, not enrolled	8	32	45	15	5	17	7
Unemployed	3	14	19	6	4	11	5
Out of the labor force	5	18	26	9	1	6	2
<i>Males</i>							
Working full-time	39	51	57	42	37	72	46
Enrolled in postsecondary education	9	4	1	7	16	34	21
Not enrolled in school	30	47	56	35	21	38	25
Enrolled in postsecondary education	48	11	1	29	52	7	40
Working part-time	23	6	1	19	23	2	18
Not working	25	5	0	20	29	5	22
Working part-time, not enrolled	6	11	9	7	6	7	7
Not working, not enrolled	7	27	33	12	5	12	7
Unemployed	3	14	17	6	4	11	6
Out of the labor force	4	13	16	6	1	1	1
<i>Females</i>							
Working full-time	28	67	29	29	27	56	32
Enrolled in postsecondary education	9	3	1	8	7	14	8
Not enrolled in school	19	34	28	21	20	42	24
Enrolled in postsecondary education	53	12	1	44	61	8	52
Working part-time	30	6	0	25	35	4	30
Not working	23	6	1	19	26	4	22
Working part-time, not enrolled	9	11	13	10	7	13	8
Not working, not enrolled	10	40	57	17	5	23	8
Unemployed	3	16	21	6	3	11	4
Out of the labor force	7	24	36	11	2	12	4
Total	100	100	100	100	100	100	100
Unweighted sample size	10,955	960	1205	13,120	2514	640	3213

^a SOURCE: Tabulations for the United States from the National Education Longitudinal Survey of 1988 based on 8th grade panel from the 1994 third follow-up survey (unweighted $N=13,210$ weighted $N=2,968,426$). Tabulations for Australia from Youth in Transition based on the 1994 follow-up survey (unweighted $N=3213$; weighted $N=251,407$).

than the randomly selected person in the cohort, and supporting the theory of comparative advantage (Willis & Rosen, 1979).

While the results for Australia are similar, differences between and within groups are less pronounced. Controlling for selection bias, the figures show that a male Australian high school graduate from an English-speaking background would be expected to spend 21.6 months out of 22 in work or study, compared to about 18.4 months for a male high school dropout. The smaller gap

between dropouts and graduates in Australia compared to the United States may reflect the higher incidence of participation in further education and training among dropouts in Australia and a lower rate of unemployment. Despite the smaller gap in Australia between dropouts and graduates, there were similar effects linked to gender (not shown). Female dropouts had significantly fewer months in work or study than male dropouts. The same was true for female and male graduates, though the effect was weaker. There were no significant differences in

Table 5

Estimated productive months and earnings for dropouts and graduates with and without adjustments for selection: United States white males and Australian English-background males^b

	United States Unadjusted	Adjusted for selection	Australia Unadjusted	Adjusted for selection
<i>Productive months</i>				
Graduates	18.4	19.6	18.7	21.6
Dropouts	16.2	14.4	17.2	18.4
Did not complete	16.3	14.5		
Completed a GED	16.3	14.2		
Completed a diploma	15.5	14.7		
<i>Monthly Earnings^a</i>				
Graduates	\$ 937	\$ 927	A\$ 1121	A\$ 1217
Dropouts	\$ 915	\$ 895	A\$ 1166	A\$ 1084
Did not complete	\$ 930	\$ 986		
Completed a GED	\$ 876	\$ 1222		
Completed a diploma	\$ 979	\$ 430		

^a Respondents who were not enrolled in higher education or were working full-time and enrolled in February (US) or October (Australia) 1994.

^b Earnings estimates are for someone with the average number of productive months for their group. The maximum number of productive months is 20 in the United States and 22 in Australia.

months of productive activity for young people from different language backgrounds in Australia, for both dropouts and graduates. As in the US case, the selection coefficients were significant and positive for both groups, again supporting the theory of comparative advantage (Willis & Rosen, 1979).

A second set of selection models were estimated for the US to examine differences in months of productive activity between dropouts who did not finish, dropouts who completed a GED or other high school certificate, and dropouts who completed a regular high school diploma. The selection coefficient was positive and significant for dropouts who did not complete school and for dropouts who completed a GED, but insignificant for dropouts who earned a diploma.

The results suggest that students who drop out, even if they eventually complete school, are generally less productive after high school than students who never drop out (Table 5). In fact, students who dropout and then go on to complete a GED or high school diploma are no more productive than dropouts who never return to school. This suggests that even if dropouts who complete high school have equivalent cognitive skills to high school graduates who never drop out, they may not have equivalent non-cognitive skills (e.g., perseverance) that lead to productive activity after high school.⁹ And even

if they have greater cognitive skills than high school dropouts who never return, they may still be similarly deficient in non-cognitive skills that lead to investment in productive activity after high school.

For white males, dropouts who did not complete high school were as productive as dropouts who completed school either via a GED or high school diploma. But that was not true for other demographic groups. Women who dropped out and earned a high school diploma were more productive (14.7 months) than women who dropped out and never completed (14.5–5.5=10 months) or women who dropped out and completed a GED (14.2–4.9=9.3 months). Minority groups (except Native Americans) had a similar pattern because, like women, dropouts who earned a diploma had the same estimated values for productive months as whites, but among dropouts who never completed or completed a GED they had significantly lower values for productive months.

7. Earnings for the non-college bound

The previous findings suggested that staying in school and graduating increases the prospects for productive activity in the first two years following high school. But do the benefits of completing high school also appear in the earnings that young people gain? At this age, earnings may not be large and, in Australia at least, may be affected by youth training allowances. Nonetheless, we estimated models for earnings of dropouts and graduates who were not engaged in schooling as the primary activity during the last interview period, controlling for selection using the same models as before.

⁹ We control for the effects of ability (8th grade test scores) in the probit model. We also estimated selection models that included ability and found that, controlling for selection effects, ability had no direct effect on months of productive activity or earnings.

The estimated monthly earnings for a US white male and an Australian male from an English-speaking background with the estimated months of productive activity for their respective education group with and without adjustments for selection are shown in Table 5. The results show similar earnings for graduates and dropouts in the United States and a slight advantage for graduates in Australia after controlling for selection. Although dropouts had fewer months of productive activity than graduates, they received a higher wage premium for each month of productivity activity than high school graduates. In the US, dropouts earned about 4% more per month for each month of productivity activity, compared to less than 3% for graduates. In Australia, dropouts earned about 3% more per month compared to less than 2% for graduates. Females had significantly lower earnings than males in both the dropout and graduate groups in the US, but only in the dropout group in Australia. Ethnic minorities in both countries generally had earnings similar to the majority group (except Hispanics in the US had higher estimated earnings).

A second set of selection models were estimated for US dropouts to examine differences in months of productive activity between dropouts who did not finish, dropouts who completed a GED or other high school certificate, and dropouts who completed a regular high school diploma. In these models, the selection coefficient was insignificant for dropouts who did not complete high school, but negative and significant for dropouts who completed a GED, and positive and significant for dropouts who earned a high school diploma. This suggests that dropouts who received a high school diploma had higher earnings than a randomly selected dropout in the cohort, whereas dropouts who received a GED earned less than a randomly selected dropout.

These estimates were then used to compute estimated earnings for white males, which are displayed in Table 5. The results show that although estimated earnings are similar among dropouts who do and do not complete high school *without* adjustments for selection, there are widespread differences in estimated earnings after controlling for the effects of selection. The results suggest that an average or random dropout would earn three times as much by completing a GED than by completing a regular high school diploma. In fact, even an average dropout who did not return to school would earn more than a dropout who earned a diploma. Two factors account for the higher payoff to a GED than a high school diploma for an average dropout. One is the effect of selection—dropouts who return to school and earn a diploma have higher earnings than a randomly selected dropout would likely earn, whereas dropouts who earn a GED have lower earnings than a randomly selected dropout would likely earn. The second factor is the payoff to months of productive activity. Dropouts who earned a GED earned almost 7% higher earnings per month of

productive activity, compared to 3% for dropouts who did not complete or dropouts who earned a diploma.¹⁰

The payoff for earning a GED is even higher for women since their earnings were not significantly different than for males. In contrast, female dropouts who did not return to school earned 25% lower wages than male dropouts. Ethnic differences were not significant in any of the three groups.

8. Summary and conclusions

This study examined the early education and employment experiences of high school dropouts in the US and Australia. Unlike most studies of high school dropouts, this study identified all students who ever dropped out of high school in two similar cohorts of youth in the US and Australia. By doing so, it was not only possible to determine how many students ever dropped out of school, but also to examine differences in the subsequent education and labor market experiences between permanent dropouts, dropouts who eventually finished high school, and students who never dropped out. The analysis not only revealed substantial differences between these groups, but also substantial differences between the United States and Australia.

Almost identical percentages of students dropped out of high school in the US and Australia—21% in the US and 22% in Australia. Dropout rates in both countries were substantially higher for students from lower social class backgrounds, for students in rural areas, for students attending public or government schools, and for students with low achievement levels. It would seem that the social and school-based factors influencing the rates of dropping out are similar in both the US and Australia.

However, there were substantial differences between the two countries in when dropouts left school and, more importantly, whether they eventually finished school. One reason for these differences has to do with differences in access to post-school education and training opportunities and the role of credentials. In the US, students do not receive a regular school credential until they complete a specified number of course credits, which are usually acquired at the completion of four years of high school. Students can dropout anytime, but an unreported analysis of the data revealed that most US dropouts leave after completing grade 10, or two years of high school.

¹⁰ We also explored whether there were differences in the types of jobs and industries where dropouts who earned GEDs and diplomas were employed. Overall, there were few noticeable differences, although dropouts who earned GEDs were somewhat more likely to be employed in skilled trades and less likely to be employed in clerical jobs than dropouts who earned diplomas.

In Australia, school dropouts still successfully enter apprenticeships and other forms of vocational education and training (such as certificate courses offered by TAFE colleges) from Year 10, although over the last decade Year 12 has increasingly become the main entry point. Consequently, about half of all dropouts in Australia left school at grade 10.

There were even greater differences in the extent to which dropouts eventually finished high school. Almost half of dropouts in the US had completed high school within two years of normal high school graduation, with about two-thirds acquiring a General Educational Development credential, which is recognized by most employers and post-secondary institutions as equivalent to a high school diploma, and the other third earning a regular high school diploma. In contrast, fewer than 10% of dropouts in Australia completed high school. Yet, Australian dropouts had more opportunities to pursue post-school education and training than US dropouts. In the US, nine out of ten dropouts who never completed high school did not participate in any post-secondary education or training during the first two years after high school, whereas three-quarters of students who never dropped out participated in various forms of postsecondary education and training. In Australia, about two in three male dropouts had participated in postsecondary education or training compared to about three in four graduates. For most dropouts this was in apprenticeships or other vocational education and training programs, whereas for graduates it was mainly in higher education. Among female dropouts, only about one in three participated in any formal post-school education or training program, compared to about two in three female graduates.

In both countries, dropouts had more difficulty in securing productive employment than those who never dropped out. But the disparities were greater in the US than in Australia. Two years after high school graduation, 45% of all dropouts in the US who did not complete high school were not working at any job or enrolled in postsecondary education and training, compared to only 8% for students who had never dropped out of high school. In Australia, only 17% of dropouts who did not complete high school were not working or enrolled in postsecondary school, compared to 5% for those who had never dropped out. Therefore, relative to those who had never dropped out, high school dropouts who had not completed high school were much more disadvantaged in the US than in Australia. This same relative disadvantage was observed by looking at the total number of months not working or enrolled since high school—US dropouts were much more likely than Australian dropouts to have spent the majority of their time not employed or enrolled in school or training programs. In both countries, female dropouts were relatively more

disadvantaged than male dropouts compared to their counterparts who had never dropped out.

Because almost half of all dropouts in the US eventually completed school, it was possible to compare education and employment experiences of dropouts who completed high school with those of dropouts who never completed high school. The results presented a mixed picture of the benefits to completing high school. Dropouts who completed high school were more likely to have enrolled in some form of post-secondary education or training within the first two years after high school than dropouts who had never completed. This finding confirms one of the benefits of receiving a high school credential—it provides access to post-school education and training that would not be there otherwise. However, the percentage participating in post-school education and training was still quite small—35%—and much smaller than the participation rate among students who had never dropped out. Dropouts who completed high school also had difficulty securing productive employment in the first two years beyond high school. Almost a third of all dropouts who had completed high school were not working two years after high school, compared to 45% for dropouts who had never completed and only 8% for those who had never dropped out.

The US results further fuel the current debate about the economic benefits of dropouts completing high school by earning a GED (Cameron & Heckman, 1993; Murnane, Willett & Boudett, 1995, 1997, 1999; Murnane et al., 2000; Tyler, Murnane & Willett, 2000). On the one hand, dropouts who completed high school by earning a regular diploma or a high school equivalency certificate were no more productive in their first two years past high school than dropouts who did not complete high school, supporting the claim that there may be no economic benefit to either regular or alternative high school credentials for dropouts (Cameron & Heckman, 1993). This finding also suggests that the non-cognitive aspects of schooling may be more important than the cognitive ones since dropouts who eventually complete school by earning a GED or diploma should, on average, have the same cognitive skills as regular graduates (Kerckhoff, Raudenbush, & Glennie, 2001; Murnane et al., 2000; Raudenbush & Kasim, 1998). On the other hand, there does appear to be an economic benefit in terms of higher earnings for dropouts who complete a GED compared to high school graduates, at least among youth who are not enrolled in college, supporting the claim of economic benefits for dropouts who complete high school (Murnane, Willett & Boudett, 1995; Murnane et al., 2000; Tyler, Murnane & Willett, 2000).

Overall, although similar proportions of young people dropped out of high school in the US and Australia, the educational and economic consequences were quite different. In the US, many dropouts eventually completed high school, yet the majority had not entered any form

of postsecondary education and training two years after high school. In Australia, in contrast, although few school dropouts eventually complete high school, about half of all dropouts enroll in some form of postsecondary education and training. In other words, although a higher proportion of Australians than Americans fail to complete high school, Australian dropouts are more likely than their American counterparts to enroll in postsecondary education and training. Moreover, high school dropouts in the US, even those who eventually completed, were much less likely than high school graduates to settle into productive employment within the first two years of high school compared to dropouts in Australia. This suggests that dropouts are at a relatively larger disadvantage compared to high school graduates in the US than in Australia.

The findings from this study underscore the importance of examining in greater detail the education and employment experiences of youth as they complete high school. There may be a multitude of pathways from secondary school completion to post-school education, training, and employment. By using longitudinal data sources, it is possible to identify those alternative pathways and determine which ones form the training and experience that will lead to productive employment as adults.

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