

MELBOURNE INSTITUTE
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Working Paper Series
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School-to-Work Transition in Australia
and the United States**

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Working Paper No. 6/18
May 2018

Parental Joblessness and the Moderating Role of a University Degree on the School-to-Work Transition in Australia and the United States*

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* This work was supported by the Australian Research Council (DP160101063). It uses unit record data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey. The HILDA Survey Project was initiated and is funded by the Australian Government Department of Social Services (DSS) and managed by the Melbourne Institute of Applied Economic and Social Research (Melbourne Institute). The collection of PSID data used in this study was partly supported by the National Institutes of Health under grant number R01 HD069609 and the National Science Foundation under award number 1157698. This paper was presented at the Melbourne Institute (7/25/17), the DSS (9/22/17), the Australian Sociological Association meeting (11/28/17), and the Population Association of America meeting (4/26/18). The authors would like to thank the participants. Contact: <matthew.curry@unimelb.edu.au>.

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Abstract

Does parental joblessness delay young adults' school-to-work transitions? If so, can a university degree moderate this relationship? We examine these questions using a representative sample of young adults under the age of 25 that lived with their parents prior to entering the labor market in Australia (N=2,151) and the U.S. (N=811) during the period 2001-2015. Results from Cox proportional hazards models, adjusting for clustering of siblings, demonstrate that parental joblessness is associated with slower school-to-work transitions in both the U.S. and Australia. University degree attainment mitigates much of this negative relationship in Australia, suggesting that parental joblessness is most harmful for Australians who leave school before earning a university degree. There is no evidence for a similar interaction in the U.S., suggesting that the relationship between education, parental joblessness, and the school-to-work transition may depend on contextual factors such as the welfare regime.

JEL classification: I24, J62

Keywords: employment, education, generations, social mobility

1. Introduction

It is now well established that growing up in a low-income household is negatively associated with later life outcomes. This is reflected in lower levels of educational attainment, and greater likelihoods of experiencing income poverty and welfare reliance in adulthood (for reviews, see: Corcoran, 1995; Haveman and Wolfe, 1995; Jenkins and Siedler, 2007; Black and Devereux, 2011; Torche, 2015). Relatedly, there is also evidence that children with an unemployed parent (usually the father) are more likely themselves to experience unemployment or joblessness during adulthood (e.g., O'Neill and Sweetman, 1998; Ermisch, Francesconi, and Pevalin, 2004; Ekhaugen, 2009; Macmillan, 2014; Mäder, Müller, Riphahn, and Schwientek, 2015), though the extent to which this relationship is causal remains unclear. Additionally, a very small number of studies have reported evidence which suggests that children in households where no parent in the household is employed, as distinct from just the father (or mother), are at a particularly high risk of joblessness (Ermisch et al., 2004; Schoon, 2014; Gregg, Jerrim, Macmillan, and Shure, 2017).

Relatively little, however, is known about the mechanisms that could potentially mitigate this link between parental joblessness and the future employment prospects of their children. One such mitigating mechanism could be education, particularly at the university level. For children from jobless households, universities may provide access to resource-rich social networks that place disadvantaged students in settings where they can build networks with advantaged peers who have access to valuable resources and information. Universities may also act as recruiting hubs where employers disseminate information about future open positions and thus link young adults from disadvantaged backgrounds with potential employers. Further, if finding a job is more difficult for children from jobless households because of a lack of social capital, then a university credential may counteract this disadvantage, at least in part, by providing a trusted signal of quality to employers.

Our study tests this possibility using panel survey data collected from samples of young adults who were exposed to parental joblessness during adolescence and young adulthood. Data are drawn from the Household, Income and Labour Dynamics in Australia (HILDA) Survey and the Panel Study of Income Dynamics (PSID). More specifically, we examine the moderating role of obtaining a university degree on the relationship between parental joblessness and the school-to-work transition, measured as the length of time until the first job after exiting education. Parental joblessness is operationalized as the proportion of time in which children lived in households where both parents experienced joblessness at the same time (either in the form of unemployment or labor market inactivity) when children were aged 25 years or under and prior to completing their highest qualification. In single-parent households we obviously only consider the joblessness of the co-residing parent. We are thus not studying the effects of parental joblessness per se; rather it is the effects of growing up in households where co-resident parents are jobless that is the focus of this analysis. The term household joblessness might thus be seen as preferable to parental joblessness. However, we are not measuring household joblessness either, given we take no account of the labor market status of other adults in the household (e.g., older siblings).

Our study makes four major contributions to the literature. First, we calculate parental joblessness over multiple years using detailed labor force calendar data collected contemporaneously from parents. This stands in contrast to other studies, which have relied either on individual's recalling their parents' employment statuses (Gregg et al., 2017), on measures constructed from observations collected at just a few points in time (e.g., Schoon, 2014), or on measures that are unable to fully account for the simultaneity of parents' joblessness (Ermisch et al., 2004). Second, while the use of household joblessness as an indicator of childhood disadvantage has increased (e.g., Gregg, Harkness, and Machin, 1999; de Graaf-Zijl and Nolan, 2011; Bradshaw and Main, 2016), there has been little research

about its effects on the school-to-work transition. Our study extends existing scholarship by examining group differences in the school-to-work transition among youth with and without exposure to parental joblessness, allowing us to determine the significance of parental employment for this crucial point in youth's careers (Shavit and Müller, 1998). Third, we advance the small literature on dual-parent joblessness by examining, for the first time, the moderating role of a university degree on the school-to-work transition, allowing us to infer whether university education can counteract the adverse effects of parental joblessness. Fourth, we compare the school-to-work transition in two countries, Australia and the U.S., to see whether effects related to parental joblessness and the potentially moderating role of a university degree are similar across two institutional contexts. While Australia and the U.S. are sometimes both considered liberal welfare regimes (Esping-Andersen, 1990), they exhibit considerable variation in the thrust and generosity of policies around jobless families and school-to-work transitions, leading some to reject that classification (Arts and Gelissen, 2002).

2. Previous Literature

2.1. Parental Joblessness and Young Adult Children's Outcomes

A variety of potential mechanisms might account for the linkages between parental joblessness and delayed school-to-work transitions. Key theories from sociology and economics emphasize the role of family investments (see Blau and Duncan, 1967; Becker and Tomes, 1986). From an investment perspective, parental joblessness could reduce parents' investments in their children, leading to decreasing educational attainment and decreased employment prospects as adults. Parental joblessness predictably reduces long-term household monetary resources, which parents may use to provide food, housing in safe and enriching neighborhoods, and educational goods and resources (Kalil and Ziol-Guest,

2008; Schoon, 2014). Young children who experience reduced parental investments due to the joblessness of their parents may also fall behind in school and as a result face difficulties in finding a job, thereby delaying transitions into the labor market (Stevens and Schaller, 2011). These early disadvantages may then build on themselves in self-reinforcing cycles to produce large discrepancies later in adolescence or young adulthood (DiPrete and Eirich, 2006).

Socialization theories (Bandura, 1977), on the other hand, predict that parental joblessness may adversely affect children's attitudes toward education and work by causing them to internalize parents' changing norms around employment. This may lead to detachment from the labor market and again delay the school-to-work transition. Mooi-Reci and Bakker (2015), for example, found that part of the negative effect of a fathers' unemployment duration following job loss was explained by its negative effect on mothers' views toward work. Thus, how mothers viewed work in the face of a father's job loss had the potential to mediate the effect of that job loss on children's educational outcomes. Along similar lines, the potential for increased psychological distress and tension within the family during spells of parental joblessness may adversely affect children's motivations, educational performance, and behavior at school (Kalil and Ziol-Guest, 2008).

Finally, social capital theories (Granovetter, 1973; Lin, 1999) predict that parental joblessness may delay children's school-to-work transition by decreasing social capital. When parents suffer job losses or protracted periods of labor market inactivity, their social networks tend to shrink, both in size and in terms of access to power and resources (Brand, 2015). Given how important family ties can be for both providing positive references to employers and providing information to potential employees (Corak and Piraino, 2011; Hensvik and Skans, 2014; Kramarz and Skans, 2014), those who experience parental joblessness may be disadvantaged in the labor market.

Based on these findings we expect the following:

Hypothesis 1: Parental joblessness is associated with slower school-to-work transitions.

2.2. The Protective Role of Education

The relative disadvantage that children experience for having jobless parents may be mitigated by obtaining higher levels of educational qualifications, such as a university degree (Hout, 2012). In addition to providing students with human capital, universities may substitute for some of the social capital depleted by having had jobless parents. For example, the signaling function of a university degree may take on added significance if individuals lack a wide social network that can vouch for them to potential employers. Universities may also substitute for lost social capital by acting as disseminators of information about job openings for students, another important way that social networks can increase employment prospects (Granovetter, 1973; Lin, 1999). Obtaining a university degree may also mitigate the negative effect of parental joblessness on social capital by placing disadvantaged students in settings where they can build networks with more advantaged peers; for example, recent graduates employed in the types of positions that students may seek after graduation. In work examining the effects of familial networks, parents' networks were stronger predictors of labor market outcomes for children with low levels of education. This suggests that workers with low levels of education who do not have access to resource-rich social networks are at particular risk of experiencing unemployment or low wages, and that completing higher educational credentials may buffer some of this risk (Hensvik and Skans, 2014; Kramarz and Skans, 2014).

The university also provides an environment where norms and attitudes around academic achievement and work are generally very positive. Exposure to the university environment may thus counteract the negative effect of parental joblessness on work norms. This is

consistent with prior work that has found larger positive effects of university completion on socioeconomic outcomes for marginal students than for the most advantaged population (Card, 1999; Brand and Xie, 2010; Hout, 2012).

We therefore expect that:

Hypothesis 2: The negative effect of parental joblessness on the school-to-work transition will be counteracted by a university degree attainment.

2.3. The School-to-Work Transition in the Australian and U.S. Contexts

The youth labor market in Australia has, at least in recent years, been much stronger than the youth labor market in the U.S. This is reflected in higher labor force participation and employment rates, and a noticeably lower unemployment rate. Over the period 2003 to 2014, when we measure children's transitions from school to work, the labor force participation rate for persons aged 15 to 24 years averaged 69.2% in Australia compared with just 57.8% in the U.S., the comparable employment-to-population ratios averaged 61.5% and 49.8%, and the unemployment rates averaged 11.1% and 14.0% (OECD, 2017).

Australia's strong youth labor market relative to the U.S. is due to a combination of a relatively stronger economy, policies that encourage employment among young workers, and arguably its more highly regulated higher education system. Australia has not experienced a recession since the early 1990s, and while unemployment rose in the late 2000s, it did not approach levels seen in most other industrial nations (OECD, 2013). Australia also has active labor market programs designed to aid unemployed youth early in their careers by implementing activity requirements as conditions of some benefits (Davidson and Whiteford, 2012). The unemployed in Australia are encouraged to find employment through job search assistance, training, and job matching programs offered by third party employment agencies, which are incentivized to find "durable jobs" for their clients because subsidies are tied to

employment outcomes that last for at least 6 months. While the U.S. Department of Labor offers job search information and funds some training programs for unemployed workers, it does not subsidize third party employment agencies or actively assist in job matching in ways comparable to Australia. These different policy approaches are reflected in marked differences in public expenditure. According to OECD data (reported on the stats.oecd.org website), Australia, while not a big spender by OECD standards, still spent twice as much as the U.S. on active labor market programs as a percentage of its GDP over the period 2003 to 2014, and ten times as much on job placement of unemployed individuals.

That said, levels of income support for job seekers are also much more generous in Australia. OECD data (again available on the stats.oecd.org website), for example, show that the average net replacement rate over a 60-month period for a single person that does not qualify for cash housing assistance or social assistance “top ups” was, in 2015, 27% in Australia and just 4% in the U.S. The meager benefits provided to jobless individuals in the U.S. would be expected to lead to faster transitions from education to employment than in Australia, given the costs of remaining jobless are higher in the U.S.

Australia and the U.S. also differ in how their university systems are structured. Despite recent reforms (OECD, 2013), the higher education system in Australia is relatively centralized. Monitoring occurs at the national level through the Tertiary Education Quality Standards Agency, which oversees the quality standards of academic programs, and the Australian Skills Quality Authority, which monitors both the training providers and the quality of apprenticeships for vocationally oriented programs at the tertiary level. Australia has also more fully embraced work integrated learning (WIL) initiatives, which are woven into higher education curricula in the form of industry-based projects, internships, project-based learning, fieldwork, or work placements, and aim to provide industry specific skills

while at university and facilitate a smoother transition from university to work (Edwards, Perkins, Pearce, and Hong, 2015).

The U.S. university system, on the other hand, is characterized by low levels of central regulation, a lack of tracking into particular occupations, and weak pathways to the labor market (DiPrete, Bol, Eller, and van de Werfhorst, 2017). While comparable WIL initiatives in tertiary education have developed more recently in the U.S., these tend to be limited to the fields of study that lead to heavily regulated occupations, such as health, education, and engineering (DiPrete et al., 2017).

Ex ante, it is unclear whether the moderating role of a university degree is stronger or weaker in Australia than in the U.S. On one hand, the assistance offered to unemployed youth by government in Australia may reduce the effect of university completion by universalizing benefits that universities offer students. For example, if universities aid initial job searches, the state's assistance via employment agencies offered universally may decrease the comparative advantage enjoyed by university graduates.

On the other hand, the protective role of a university degree may be stronger in Australia than in the U.S. due to Australia's targeted support for low-skilled workers with little work experience and because of its stronger school-to-work linkages. While reservation wages among high-skill workers may not vary according to welfare policies or minimum wages, the reservation wages of less-educated individuals may be higher in nations with stronger safety nets, such as Australia (relative to the U.S.). That is, university graduates in both societies might expect high future earnings, allowing for longer initial job searches to ensure a match with a high-paying job. In contrast, less-educated individuals in weak welfare states may be unwilling to accept long periods of joblessness because they would be unable to recover those lost earnings with high wage work in the future. Less-educated individuals in strong

welfare states, however, may be more likely to prolong the initial job search if welfare benefits replace much of their lost potential wages.

Another relevant institutional difference is pathways from university to work that are more diffused, and WIL initiatives at universities that are more underdeveloped, in the U.S. This leads to weaker school-to-work linkages and thus slower transitions into the labor market (Bol and Weeden, 2015; DiPrete et al., 2017). In Australia, a nationally steered educational system and more broadly integrated WIL initiatives in higher education should contribute to stronger institutional linkages between higher education and the labor market, leading to smoother and faster transitions from school to work. Thus, in Australia, where qualifications and occupations are linked more strongly than in the U.S., a university degree may further reduce the time to first job.

Based on these institutional differences, on balance we expect:

Hypothesis 3: The moderating role of a university degree will be stronger in Australia than in the U.S.

3. Data, Variables and Methods

3.1. Data

The Australian data come from waves 1 to 15 of the Household, Income, and Labour Dynamics in Australia (HILDA) Survey, a panel study that has been interviewing members of a nationally representative sample of Australian households on an annual basis since 2001 (see Watson and Wooden, 2012). While the survey is broad in coverage, it has a specific focus on employment and work and thus provides extensive information about education and labor market outcomes. The study commenced with an initial responding sample of 13,969 persons aged 15 years and over. The HILDA Survey's household panel design allows linkage of detailed employment data from parents to children, as opposed to asking young adults

retrospectively about their parents' prior employment, while the longitudinal nature of the data allows observation of these children as they progress into the labor market following school leaving.

The U.S. data are from the 2001-2015 waves of the Panel Study of Income Dynamics (PSID) and the 2005-2015 waves of the Transition into Adulthood Supplement (TAS), which is conducted on a subsample of PSID sample members. The PSID is a longitudinal panel study of families in the U.S. that began in 1968. We omit the oversample of low-income families, instead relying on the original nationally representative sample of households first surveyed in 1968. Follow-ups were conducted annually until 1997, and biennially thereafter. In contrast to the HILDA Survey, the main PSID employment calendar data are only collected for the head of household and his or her partner, thereby omitting young adults who have not formed their own households. To remedy this, the PSID also conducts the TAS, which asks more detailed information about a range of topics, including education and employment, from respondents who were at least 18 years old and had previously participated in the Child Development Supplement of the PSID. The TAS was first conducted in 2005 and has subsequently been conducted biennially. The TAS contains both young adults living as heads of households and those who still live with their parents (or other heads of households). Through 2015, the TAS had surveyed 2,893 unique respondents.

Due to the intergenerational nature of the research question, the analysis sample is restricted to respondents who: (i) lived in the same households as their parents for at least two years prior to completing their highest educational credential; (ii) were aged 25 years or under when co-residing with their parents; and (iii) had yet to complete their highest educational credential. We also restrict the sample to those who were not missing any observations on any of the covariates used in the model, yielding an effective analysis sample of 2,151 respondents in the Australian context and 811 in the U.S. context.

3.2. Variables

The outcome variable is the duration to employment following exit from education. We only consider the labor market spell that immediately follows completion of a respondent's highest educational credential. Employment calendar data are collected slightly differently in the HILDA Survey and the PSID. In the HILDA Survey, respondents report their labor force status for three periods of roughly ten days per month over the previous 12 to 18 months. We code each period as beginning on the first, tenth, and 21st of the month, and count the number of days in a given period of employment or non-employment. In the PSID, respondents reported whether they were unemployed or out of the labor force for at least one week in each calendar month of the two previous years before each interview. When respondents reported being either out of the labor force or unemployed for greater than a week in a given month, we consider them jobless for the entire month. For comparability, we convert calendar months to days in the U.S. data. The duration variable begins when respondents ceased educational enrollment for longer than four months. This restriction ensures that students who report not being enrolled during normal school breaks are not treated as "at risk" of employment in the event history analysis. Those who leave education for more than four months after obtaining their highest educational credential but later return to school after a period of not working are right-censored at the time of re-enrollment in education. Although some respondents vacillate between unemployment and being out of the labor force during their first jobless spells after leaving education, these initially distinct spells are combined into a single "jobless" spell until the respondent is employed or censored. Respondents are also right censored if they remain jobless until excluded from the survey due to attrition or the final wave of data collection is reached. Most respondents in the analysis sample found jobs during the time they were observed, with 211 respondents (9.8%) in the

Australian data and 69 respondents (8.5%) in the U.S. data being right-censored. The model does not estimate hazards for competing risks.

The primary explanatory variable is the proportion of time that respondents spent co-residing with jobless parents prior to their first labor market spell after leaving education. This comes directly from labor force status calendar data provided by the parents, though it is collected in a similar way to the duration variable discussed above. In two-parent households, both parents are required to be jobless in the same period; we make no distinction between unemployment and being out of the labor force. The strict requirement that both parents be jobless in the same period means that our reference category includes households with parents who have been continuously employed and those in which only one parent works.

The other key independent variable is a dichotomous measure of whether or not the respondent completed at least a bachelor's degree (which we refer to as a university degree). Control variables include gender, whether the respondent lived with both biological parents at 14, number of siblings, whether at least one parent had a university degree, whether at least one parent was born abroad, and the state/region of residence during childhood. The analysis also includes dummy variables for birth cohort, which are not displayed. Descriptive statistics are provided in Table 1.

[TABLE 1 HERE]

3.3. Methods of Analysis

We analyze the effects of household joblessness and university completion on the duration to employment following school leaving using a Cox proportional hazards model. The Cox model makes no assumptions about the functional form of the hazard of “failure”, though it does assume that covariates can only affect proportional shifts in the hazard without changing its underlying shape (Cox, 1972). Testing the proportional hazards assumption

using Schoenfeld residuals suggests that the proportionality assumption is not violated in either the Australian ($\chi^2 = 20.73; p = .997$) or the U.S. ($\chi^2 = 12.45; p = .974$) case, and thus that the Cox model is appropriate.

The equation for the Cox model is characterized by the following:

$$r(t) = h(t) \exp(X\beta), \quad (1)$$

where the product of the baseline transition rate, $h(t)$, and the exponentiated covariate vector, $X\beta$, result in the transition rate, $r(t)$. We interact our two primary explanatory variables of interest (i.e., university degree attainment and the proportion of time spent in jobless households) to determine whether effects of parental joblessness differ according to the respondent's highest level of educational attainment. The transition rate in this case, also called the hazard, refers to the transition into employment. The underlying baseline hazard rate, $h(t)$, is calculated at each value of t , which is time measured in days. The results we report allow for correlation between siblings who have the same parent(s) (Cleeves, Gould, Gutierrez, and Marchenko, 2010). That is, the models adjust for unobserved similarities shared between siblings who lived with the same mother and father that are unaccounted for by the covariates. There are 656 (30.4%) Australian respondents and 160 (19.7%) U.S. respondents who share parent(s) with another respondent(s) in the sample. Because some respondents are employed prior to leaving school, the value of t may be negative for some cases. Since students “respond to their expected post-graduation situation before graduation, it would be inaccurate to study only positive post-graduate durations” (Betts, Ferrall, and Finnie, 2000: p.3). Therefore, all spells where t is less than one day are recoded to one.

We deliberately exclude several remaining potential control variables from the model that may interfere with our estimation of the effect of parental joblessness and educational attainment because they may be considered ‘collider variables’ (Morgan and Winship, 2014).

For instance, since parental joblessness causally precedes household income, controlling for household income may reduce the estimated effect of parental joblessness. This reduction in the effect size of parental joblessness, however, is misstated since the full effect of family joblessness includes both its direct effect on the respondent's employment and the indirect effect on the respondent's employment via household income during adolescence. We also exclude some potential covariates that may be collinear with, or endogenous to, some of the independent variables included in our model. For instance, age at school leaving may be endogenous both to one's employment prospects and to educational attainment. Similar problems exist for the year of labor market entry, state of residence at the time of labor market entry, and the unemployment rate at the time of labor market entry (Betts et al., 2000). To control for some of these factors, we include measures of state of residence during childhood (as opposed to at the start of the first labor market spell) and year of birth (as opposed to age at the start of the respondent's first labor market spell).

4. Results

4.1. Australia

The Kaplan-Meier survival estimate in Figure 1 shows the survival function without the effects of any covariates for both the full sample (in the left panel) and separated by whether the respondent ever experienced parental joblessness (in the right panel). While the actual maximum duration is longer, we only show the first 3 years of the respondent's first jobless spell, which accounts for the vast majority of events. We see that a large proportion of respondents have employment spells that straddle their departure from school, meaning that many do not experience any joblessness following school leaving. The right panel shows that the majority of those who never experienced parental joblessness have jobs that either pre-date or start directly after exiting education, while those experiencing some parental

joblessness are more likely to experience joblessness during the school-to-work transition. However, these initial figures do not control for the explanatory variables we include in our model, nor do they adjust for educational attainment.

[FIGURE 1 HERE]

[TABLE 2 HERE]

Results from the Cox proportional hazards model are presented in Table 2. Model 1 shows the zero-order relationship between parental joblessness and the time to first employment after exiting education. Model 2 introduces the set of controls, while Model 3 includes the additional interaction term between parental joblessness and university degree attainment. Model 3 suggests that obtaining a degree and parental joblessness intensity interact to affect the time to employment following educational exit. The main effect for parental joblessness is negative (i.e., hazard ratio < 1), meaning that experiencing parental joblessness for those without a university degree is associated with slower school-to-work transitions, thus offering support for Hypothesis 1. Since the parental joblessness variable is a proportion ranging from zero to one, the coefficient suggests that having always, as opposed to never, co-resided with jobless parents is associated with a 53.3% reduction in the hazard of employment following school leaving. By contrast, the main effect for university degree attainment was not significantly different from zero. This suggests that a university degree did not affect time to employment among those that did not experience any parental joblessness. However, the positive interaction term also suggests that the negative main effect of parental joblessness on the hazard is mitigated by obtaining a university degree. This is illustrated in Figure 2, which shows estimated survival outcomes for those with and without university degrees across a range of parental joblessness intensities. For non-degree holders, we see a large divergence between the survival functions based on the different parental

joblessness values, suggesting a positive association between parental joblessness and time to employment following educational exit. By contrast, there seems to be no association between parental joblessness intensity and the survival functions for university degree holders, as all four lines essentially track each other. Thus, the average negative effects of parental joblessness on the hazard of employment observed in Models 1 and 2 seem to be driven by its effects on non-degree holders. These findings are consistent with recent work on the heterogeneous effects of university completion, which suggest that disadvantaged students may benefit more from degree completion than students from more advantaged backgrounds (see review in Hout, 2012). Overall, these results lend support to Hypothesis 2.

[FIGURE 2 HERE]

Some of the additional covariates in Model 3 significantly affect the hazard of employment. The number of siblings was negatively associated with the hazard of employment, with each additional sibling reducing the hazard by 2.5%. Similarly, having at least one parent born outside of Australia also negatively affected the hazard of employment, reducing the hazard by 10.7%. Finally, having at least one parent with a university degree increased the hazard of employment by 9.1%, net of controls. The remaining covariates did not have statistically significant net effects on the hazard of entering employment.

4.2. United States

Similar to Australia, the majority of those exiting education in the U.S. transition directly from education into the labor market or have employment spells that straddle their final period of educational enrollment. After one year, the vast majority of respondents had initiated an employment spell (see Figure 3). Furthermore, those without jobless parents were

more likely to be employed at the time of educational exit; the initial disparity between those who ever experienced parental joblessness and those who did not remained over time.

[FIGURE 3 HERE]

[TABLE 3 HERE]

After including our set of controls, Model 2 in Table 3 suggests a reduced yet significant association between parental joblessness and time to first job, lending support to Hypothesis 1. An increase in the parental joblessness variable from zero to one is associated with a 42.9% decrease in the hazard of becoming employed net of controls. Model 2 also suggests a positive relationship between educational attainment and the hazard. Leaving education with a university degree increased the hazard of employment by 14.5%. None of the remaining variables in the model are significantly associated with the hazard of finding employment. Model 3 suggests that while parental joblessness and university degree attainment affect the hazard, they do not interact in a significant manner, which differs from the results from Australia. Thus, for the U.S., Hypothesis 2 is not supported.

[FIGURE 4 HERE]

Figure 4 shows the survival functions based on Model 2 for those with and without university degrees at a range of values for parental joblessness. In contrast to similar figures for Australia, we do not include the interaction term because it was not significant. First, looking across the two graphs at the difference between university graduates and non-university graduates, we see steeper declines in the survival function for those with university degrees, illustrating the positive effect of university degree attainment on the hazard of becoming employed. Both graphs also illustrate the negative effect of parental joblessness on the hazard, with increasing proportions of parental joblessness associated with longer

survival in non-employment following educational exit. Unlike the Australian results, we see relatively uniform increases in the survival function as parental joblessness increases in both graphs in Figure 4. The primary difference between our Australian and U.S. results is that we find no moderating effect of university degree attainment on the relationship between parental joblessness and the initial duration of joblessness in the U.S. Another difference between the two countries was that initial joblessness was higher in the U.S. than in Australia. Lastly, the disparity between those with and without jobless parents during childhood was smaller in the U.S. than in Australia (though the global financial crisis, which was felt more strongly in the U.S. during this time period, could have been partly responsible for this). Overall, these results lend support to Hypothesis 3, which predicted a greater moderating role of university degree attainment in Australia.

5. Discussion

This paper uses longitudinal data from the HILDA Survey and the PSID to test whether experiencing parental joblessness during childhood and adolescence increases the time to employment following exit from education, and whether such effects differ for university graduates and non-graduates in the U.S. and Australia. In both contexts, the intensity of parental joblessness is correlated with longer times to initial employment. These penalties are similar for U.S. degree and non-degree holders but are substantially less severe for university graduates in Australia. Thus, less-educated Australians with jobless parents are doubly disadvantaged as they transition from education into the labor market.

The finding that parental joblessness is associated with slower school-to-work transitions is consistent with prior research on the intergenerational effects of parental unemployment, which largely suggest that children are harmed by involuntary losses in parental employment and resources (Kalil and Ziol-Guest, 2008; Oreopolous, Page, and Stevens, 2008; Stevens

and Schaller, 2011; Brand, 2015). The findings are also consistent with work on the intergenerational effects of paternal joblessness, whether voluntary or involuntary (Macmillan, 2014), and with the small body of research on the intergenerational effects of parental joblessness, which attempts to consider the simultaneous employment status of co-residing parents (Schoon, 2014; Gregg et al., 2017). By measuring co-residing parents' employment statuses simultaneously, we provide additional evidence that parental joblessness has significant consequences for children's labor market outcomes. Thus, the increasing focus on parental joblessness as an indicator of childhood disadvantage by policy makers appears warranted, particularly when considering longer-term outcomes.

Part of the reason that parental joblessness is associated with longer school-to-work transitions may be due to its association with reduced educational attainment (Ermisch et al., 2004; Gregg et al., 2017). However, differences in university attainment alone do not reduce the estimated effects of parental joblessness to insignificance. In both the U.S. and Australia, parental joblessness remains associated with slower school-to-work transitions among non-university graduates; in the U.S. this disadvantage persists even for degree holders. This suggests that increasing educational attainment among children with jobless parents by itself is not sufficient to eliminate their deficits in employment during young adulthood.

We also hypothesized that attainment of a university degree would reduce the negative effect of parental joblessness, in part by providing a substitute for social capital and norms about work that may weaken when parents experience joblessness. We find support for this hypothesis in Australia, where university completion mitigates the negative effect of parental joblessness on employment, consistent with prior evidence that familial networks improve employment outcomes for less-educated workers (Kramarz and Skans, 2014). This interaction effect suggests, similar to work on heterogeneous effects of university degree attainment in the U.S. (Brand and Xie, 2010), that tertiary education in Australia may be

particularly valuable for students from disadvantaged backgrounds. Prior research suggesting parental unemployment can lower academic performance (e.g., Kalil and Ziol-Guest, 2008) is especially concerning given the evidence from Australia that higher education is most important precisely for children of jobless parents. Thus, policies targeting academic performance for these children early in their educational careers may help to counteract the intergenerational transmission of joblessness.

The null result for the interaction between degree completion and parental joblessness in the U.S., however, is surprising, especially given previous work in the U.S. context showing that degree completion tends to lessen the direct effects of disadvantaged socioeconomic backgrounds on labor market outcomes (Torche, 2011). One possible explanation for the marked differences in the magnitude of this interaction effect in our two samples lies in disadvantages stemming from socioeconomic background having stronger effects on children in the U.S. due to its weak welfare regime, which in turn promote greater inequality between children of employed and jobless parents in the U.S. than in Australia. Our findings may also reflect the types of first jobs that young adults in each society accept. For example, Australia's more generous welfare system may allow for longer initial job searches to ensure better matches and higher wages, even among low-skill workers from disadvantaged backgrounds. By contrast, a similar population in the U.S. may face pressure to seek employment quickly with less regard for job quality. While the time to employment is an important dimension of the school-to-work transition, taking into account the wages or tenure of the first job would provide a useful extension to our findings. Unfortunately, data constraints prevent us from doing so here.

Another limitation that may affect our U.S. results is the limited sample size, which in turn is a function of our reliance on the TAS. While the sample size would be improved by

using the main PSID survey, doing so would omit those who have not yet established their own households, a population likely to be employed at lower rates.

Our results should also be treated cautiously given we are unable to identify whether the effects we find are causal. Some intergenerational studies have used sibling difference models (Ermisch et al., 2004) or natural experiments (Oreopoulos et al., 2008) to assert causality. Unfortunately, we cannot use such designs due to data constraints. A final limitation is our inability to measure parental joblessness in early childhood, which theory suggests may be most consequential. In order to observe both early childhood and early adulthood, we would require longer job histories than are available in our data sources.

Despite these limitations, we contribute to the nascent understanding of the effect of parental joblessness on the school-to-work transition. Unlike most related studies, we use relatively detailed calendar data to measure both parents' employment status over a long period of childhood, allowing us to more accurately measure the intensity and timing of parental joblessness. We are also unaware of any other study that documents the association between parental joblessness and the duration of first job search after exiting education, or compares these results across Australia and the U.S.

Future work in this area should continue to explore the intergenerational effects of parental joblessness on a number of medium- and long-term outcomes, as adequate data for assessing these questions is becoming more prevalent, though still not abundant. Replication of these results in a variety of contexts would provide a clearer picture of the roles that welfare regimes and institutional linkages between education and the labor market play in moderating the effects of parental joblessness on the school-to-work transition. Lastly, work that directly tests some of the proposed mechanisms, such as social capital or norms and attitudes about work, would lead to a greater understanding of how parental joblessness affects children's life chances.

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Table 1. Descriptive Statistics: Means and Standard Deviations (SD) for Australia (N=2,151) and the U.S. (N=811)

	<i>Australia</i>		<i>U.S.</i>	
	Mean	SD	Mean	SD
Days to first job	83.14	250.80	86.91	257.32
Parental joblessness proportion	.15	.30	.06	.16
University degree	.20	.40	.33	.47
Female	.49	.50	.51	.50
Intact family	.65	.48	.58	.49
Siblings	2.29	1.62	1.86	1.03
Parent with university degree	.31	.46	.40	.49
Parent born overseas	.32	.47	.05	.21
Year of birth	1990.25	3.66	1989.04	3.26
State (Australia)				
New South Wales	.29	.46		
Victoria	.26	.44		
Queensland	.21	.39		
South Australia	.10	.29		
Western Australia	.08	.28		
Tasmania	.03	.18		
Northern Territory	.01	.09		
Australian Capital Territory	.03	.15		
Region (U.S.)				
North East			.18	.39
North Central			.31	.46
South			.30	.46
West			.21	.40

Table 2. Hazard Ratios of Entering Employment Following Exit from Education in Australia.

	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>
Parental joblessness	.434*** (-10.08)	.512*** (-7.94)	.467*** (-8.37)
University degree		1.125*** (3.70)	1.061 (1.82)
Parental joblessness * University degree			2.329*** (7.35)
Female		1.016 (0.51)	1.019 (0.61)
State (Reference category = NSW)			
VIC		1.018 (0.46)	1.025 (0.63)
QLD		.988 (-0.24)	.995 (-0.11)
SA		.998 (-0.04)	1.006 (0.10)
WA		1.008 (0.13)	1.002 (0.04)
TAS		.863 (-1.46)	.871 (-1.36)
NT		.842 (-0.75)	.851 (-0.71)
ACT		1.037 (0.40)	1.049 (0.52)
Intact family		1.071 (1.87)	1.068 (1.82)
Siblings		.974* (-2.10)	.975* (-2.07)
Parent has university degree		1.083* (2.34)	1.091* (2.57)
Parent immigrant		.895** (-3.10)	.893** (-3.19)

Note: t-statistics reported in parentheses. Coefficients for year of birth dummies are not displayed.

* $p < .05$; ** $p < .01$; *** $p < .001$

Table 3. Hazard Ratios of Entering Employment Following Exit from Education in the U.S.

	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>
Parental joblessness	.495** (-2.92)	.571* (-2.32)	.588* (-2.02)
University degree		1.145* (2.18)	1.152* (.2.27)
Parental joblessness * University degree			.803 (-0.36)
Female		.924 (-1.47)	.924 (-1.49)
Region (Reference category = Northeast)			
North Central		1.060 (0.79)	1.060 (0.79)
South		.905 (-1.24)	.906 (-1.23)
West		.966 (-0.40)	.967 (-0.39)
Intact family		1.034 (0.53)	1.032 (0.50)
Siblings		1.033 (1.16)	1.034 (1.17)
Parent has university degree		1.010 (0.15)	1.010 (0.15)
Parent immigrant		1.060 (0.49)	1.063 (0.52)

Note: t-statistics reported in parentheses. Coefficients for year of birth dummies are not displayed.

* $p < .05$; ** $p < .01$; *** $p < .001$

Figure 1. Kaplan-Meier Survival Estimates for the Full Sample and by Parental Joblessness, Australia

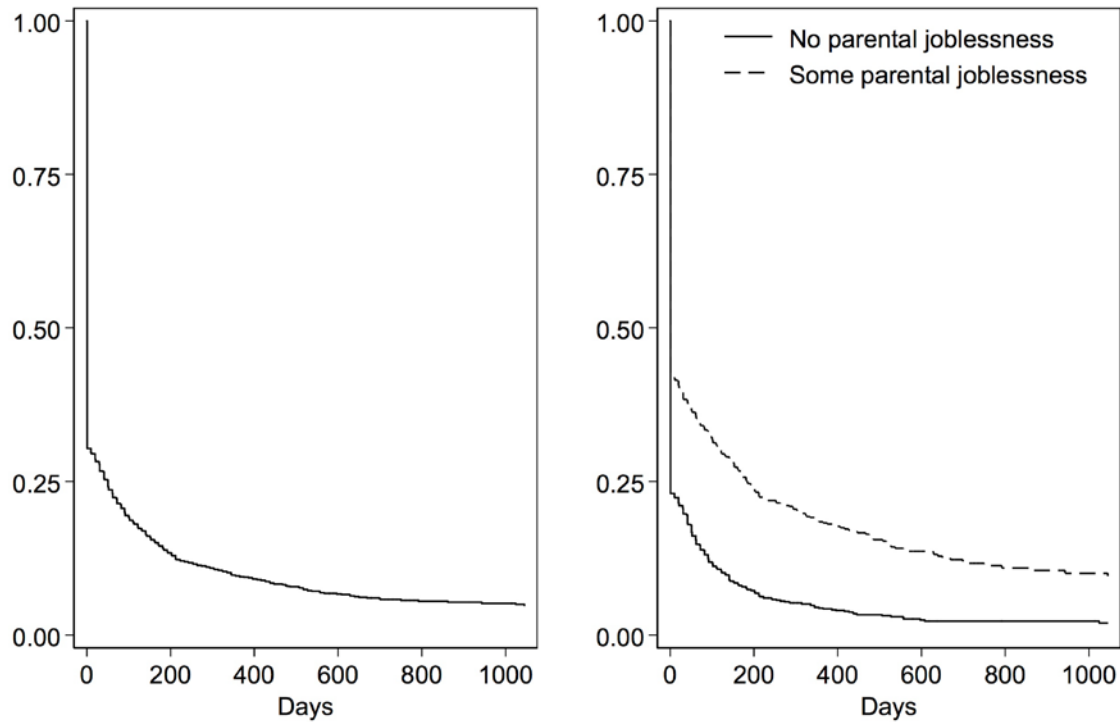


Figure 2. Predicted Survival Estimates of Time to Employment Following Exit from Education by Parental Joblessness and University Degree Attainment, Australia

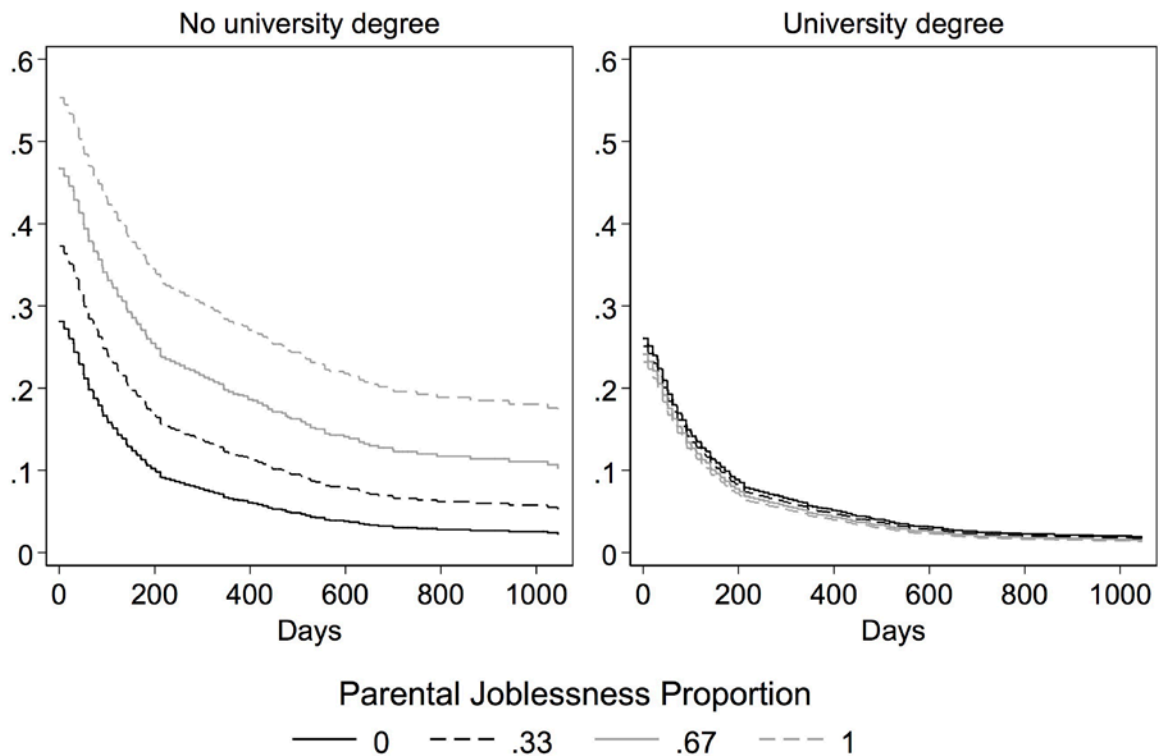


Figure 3. Kaplan-Meier Survival Estimates for the Full Sample and by Parental Joblessness, U.S.

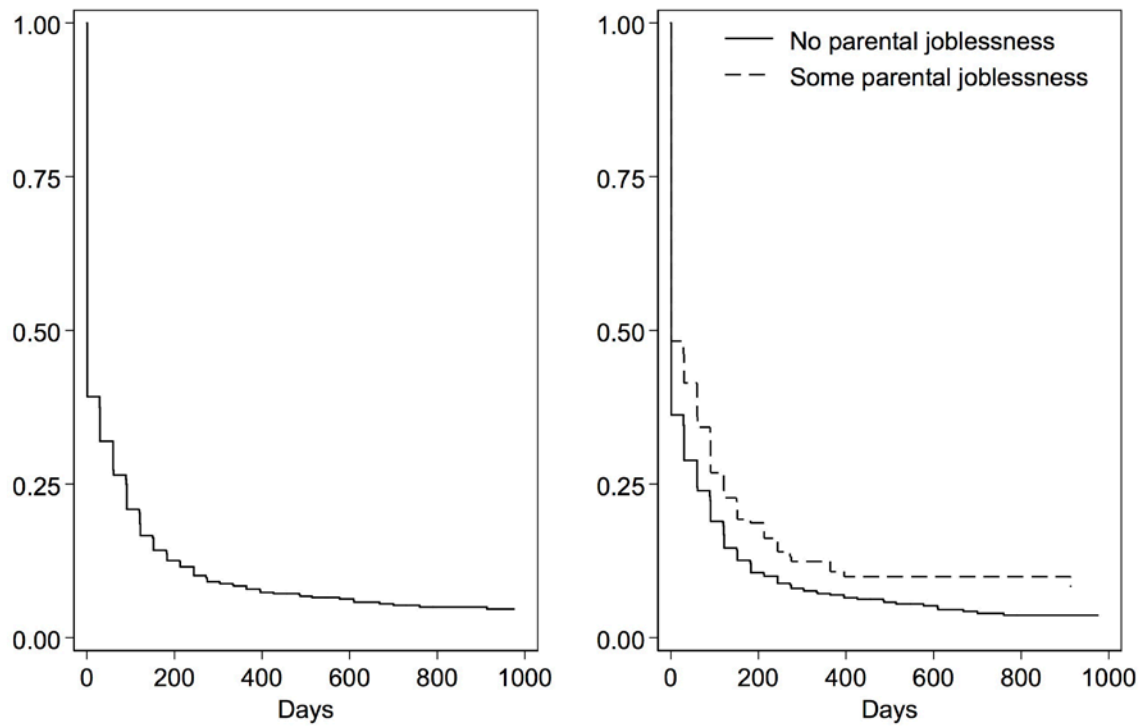


Figure 4. Predicted Survival Estimates of Time to Employment Following Exit from Education by Parental Joblessness and University Degree Attainment, U.S.

