Center on transition to employment for Youth with Disabilities

research brief

Risk Modeling of Student Post-School Employment Outcomes: Analysis of Stage I Variables

authors

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A recent Issues Brief described a risk modeling study being implemented by the Center on Transition to Employment for Youth with Disabilities. Risk modeling can be loosely defined as the identification, aggregation, and quantification of risks to individuals, organizations, etc., as the result of adverse events or circumstances. For the purposes of this study, we will be studying static risk factors that contribute to poor post-school employment outcomes for students with disabilities using the National Longitudinal Transition Study (NLTS-2) database.

This Research Brief reports on the methodology and initial findings from a prescreening logistic regression using Stage I variables. Stage I variables are static, unable to be modified by a research intervention. Examples include the research participant's age, sex, race, family income, etc. Stage II variables are mitigating or resiliency factors that are modifiable by interventions.

summary of the findings

Fifteen of 19 risk factors (See Table 1) were found to be marginally related to post-school employment. The top level risk factor was the student's inability to get around by him/herself, which is likely a surrogate measure of severity of disability and limited functionality.

research methods

The data were drawn in five waves, biyearly starting in 2001 and ending in 2009. From this sample, all students who had graduated high school before the second wave (e,g., 2003-2004) school year were considered. Students who reported they did not have a disability during the original data collection period were excluded from the data. This sample was then restricted to all participants that had non-missing response values. The final sample size was 2,260 young adults with disabilities, of whom 1,720 (76.1%) were reported as having been employed within the previous two years of Wave 5.

A set of potential predictor variables was selected by their relationship to employment and those found to be either important marginal or conditional predictors of employment in the literature (Carter et al., 2011a,b). Additionally, scores were computed for a participant's Classroom Social Scale, Classroom Behavior Scale, and Household Responsibility Score. See Carter et al. (2011a,b) for definitions of these variables. Categories of these scores were created using the first and third quartiles of the scores. Furthermore, some variables had a low cell count in some of the categories. In these situations, categories were merged so that the sample sizes were sufficient.

A classification and regression tree (CRT) algorithm using the Gini Index was used to build a classification tree using SPSS v.20 (IBM SPSS Statistics). The CRT uses a systematic algorithm to detect the strongest association between predictors and the response variable (i.e., employed vs. not employed within the past two years) through a comprehensive search of the potential predictor variables by identifying subgroups that show the most variation/differentiation in the outcome variable. The degree of differentiation is depicted sequentially in a decision tree format to show the optimally split predictors.

The distribution of the outcome variable was summarized using frequencies and percents for each potential predictor variable. Each of the potential predictor variables was screened using a bivariate logistic regression model (independent of any other predictor variable). Odds ratios and 95% confidence intervals are reported for each logistic regression model.

descriptions of findings

Table 1 shows the distribution of the outcome variable for each predictor and summarizes the results from the logistic screening process. Fifteen of the 19 variables were found to be related to employment (P<.001). Using CHAID, the primary split (i.e., top-level risk factor) was the student's ability to get around by him/herself. This is likely a surrogate measure for severity of disability. Those who cannot get around well overall tend to have a low two-year employment status, although this is moderated by participant's ability to feed oneself, their age, and Household Responsibility Score. Conversely, those who

continued on page 4

table 1

Frequencies may not sum to n=2,260 because of missing values. Logistic regression p-values are for the overall effect, and NOT for the individual odds ratios.

* P<0.05 ** P<0.01 *** P<0.001

		Employment Status			
Variable	Level	N	%	OR (95% CI)	Sig
Disability	Cognitive	660	29.6	0.98 (0.76, 1.27)	***
	Emotional	240	10.7	2.42 (1.41, 3.21)	
	Sensory	770	34.4	1.03 (0.80, 1.32)	
	Physical	570	25.4	--	
Sex	Male	1440	63.5	1.64 (1.35, 2.00)	***
	Female	830	36.5	--	
Race	White	1590	70.3	2.10 (1.31, 3.38)	***
	African American	360	16.6	1.41 (0.84, 2.36)	
	Hispanic	230	9.8	0.87 (0.51, 1.48)	
	Other	80	3.2	--	
Community Type	Suburban	1090	54.7	1.04 (0.72, 1.51)	***
	Urban	710	35.5	0.69 (0.47, 1.00)	
	Rural	200	9.8	--	
Household Income Level	≤$25,000	570	26.5	0.36 (0.28, 0.46)	***
	$25,001-$50,000	660	30.8	0.60 (0.47, 0.77)	
	>$50,000	920	42.7	--	
Single Parent Household	Yes	430	20.1	0.68 (0.54, 0.86)	***
	No	1690	79.9	--	
Living Situation	2 parents	1440	69.2	1.92 (1.31, 2.83)	***
	1 parent	510	24.7	1.42 (0.94, 2.15)	
	Other	130	6.1	--	
Family Received any Benefits	Yes	470	78.0	0.37 (0.29, 0.46)	***
	No	1680	22.0	--	
Age	<23	220	9.7	0.71 (0.50, 1.02)	
	23	660	29.2	0.85 (0.71, 1.20)	
	24	870	38.4	0.93 (0.71, 1.20)	
	25	22.8	22.8	--	
Household Responsibility Score	High	530	24.2	1.82 (1.41, 2.36)	***
	Medium	820	37.8	1.91 (1.52, 2.40)	
	Low	820	37.9	--	
Household Education	College Degree	470	21.6	1.61 (1.24, 2.10)	***
	Some College	740	34.1	1.61 (1.28, 2.02)	
	HS/GED	960	44.3	--	
Classroom Behavior Scale	High	750	58.3	1.23 (0.82, 1.84)	
	Medium	380	29.5	0.92 (0.55, 1.28)	
	Low	160	12.2	--	
Classroom Social Scale	High	200	15.5	1.06 (0.72, 1.56)	
	Medium	590	45.4	0.90 (0.68, 1.18)	
	Low	500	39.1	--	
Communication Ability	No Trouble	1400	65.2	3.92 (2.60, 5.92)	***
	Little Trouble	640	30.1	2.84 (2.60, 4.08)	
	Not at all/Lot of Trouble	100	4.7	--	
Feeds self	Very Well	1850	85.0	4.47 (3.50, 5.72)	***
	Not Very Well	330	14.9	--	
Dresses self	Very Well	2010	92.2	4.73 (3.43, 6.52)	***
	Not Very Well	170	7.8	--	
Mobility	Very Well	1400	66.8	5.27 (4.02, 6.91)	***
	Pretty Well	410	19.6	3.26 (2.36, 4.50)	
	Not at all Well /Not Very Well	290	290		
Understanding	No Trouble	1360	63.6	1.42 (1.16, 1.74)	***
	Some Trouble	780	36.4	--	
Transportation availability	Yes	870	82.8	0.69 (0.46, 1.03)	
	No	180	17.2	--	

are able to get around well were considered to have a less severe disability and have better employment outcomes. This branch of the tree is augmented by mostly socio-economic variables such as whether the family has received any benefits and household income, as well as race/ethnicity and gender of the student.

implications for the field

These results confirm findings of prior research regarding variables that predict post-school employment of students with disabilities, including disability type, sex, race, household income, and receipt of government benefits. This study also included other potential risk factors, including measures of the student's functional abilities, including the top level factor, ability to get around. Other significant factors related to functional abilities included communication, self-feeding, and self-dressing.

further research

This analysis represents the first analytical step in this research project. Similar analyses will be undertaken with Stage II variables, those that are amenable to intervention. Following that, the Stage I risk groups will be treated as separate populations. Logistic regression using the Stage II variables will be conducted for each of those populations to determine which of the Stage II variables could potentially mitigate risks of poor employment outcomes for those groups.

One limitation of this analysis is the definition of employment status. The outcome measure used in this work considers any work in the two years prior to Wave 5 ending to be gainful and competitive employment. However, this may not be true. Incorporating hours worked and wage rates into an employment variable may be useful in creating a better and more meaningful outcome measure.

references

Carter, E. W., Austin, D., & Trainor, A. A. (2011a). Factors associated with the early work experiences of adolescents with severe disabilities. *Intellectual and Developmental Disabilities*, 49, 233-247.

Carter, E. W., Austin, D., & Trainor, A. A. (2011b). Predictors of postschool employment outcomes for young adults with severe disabilities. *Journal of Disability Policy Studies*, 23, 50-63

resources

Additional information regarding the NLTS-2 study methodology, survey design, and other findings: SRI International (http://www.nlts2.org).

Additional information regarding transition from school to work: National Center on Secondary Education and Transition (http://www.ncset.org).

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