Center on transition to employment for Youth with Disabilities

research brief

Stage 2 Characteristics of Youth with Disabilities and Employment Status: Preliminary Investigation

A set of Stage 2 variables were created that were modifiable characteristics of the participants of the National Longitudinal Transition Study-2 (NLTS-2) data. These variables were used to predict employment using a classification tree. The resulting tree showed two sub-populations of employment status separated by the previous job history of the youth. This analysis can be used to identify sub-populations that are at high risk (and low risk) of not gaining employment to identify factors that may be modified in order to lead to better employment outcomes.

authors

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introduction

The goal of this analysis is to create a model using modifiable characteristics of students with disabilities and the schools they attend to predict employment. The set of variables considered here are referred to as "Stage 2" variables. The regression tree analysis will result in several sub-populations of students based on the Stage 2 characteristics that have varying risks of unemployment.

methods

The National Longitudinal Transition Study-2 was used as source data (n = 11270). This data was 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 and students reporting they did not have a disability during the original data collection period were excluded from the data (n = 60) resulting in a sample size of n = 2300. This sample was then restricted to all participants that had non-missing response values (n = 2260). All samples sizes are rounded to the nearest 10.

The response variable for this study was whether or not a student had a paid job in the last two years of the end of the study. This includes any participant who had a job at Wave 5 or within the two years prior to Wave 5 data collection.

A set of potential predictor variables was selected based on a review of the literature and their potential relationship to employment and their ability to be modified through an intervention. Additional variables are currently under investigation. Because of the structure of the data, not all survey questions were asked to all of the participants. Furthermore, some questions were asked only to the students or parents. To maximize the number of variables considered and to minimize the amount of missing values, some of the variables were constructed from either multiple waves or multiple items. Lastly, some variables were re-coded so that no specific category would be sparse enough to prohibit use in a statistical analysis. A list of these variables and how they were recorded can be found in Table 1.

All variables were summarized by the frequency and percent that occurred for the different levels of the variables. Each of the variables was screened using a logistic regression model that was independent of any other predictor variable. Odds ratios and 95% confidence intervals (CI) are reported for each logistic regression model.

The primary analysis consisted of a classification tree analysis of the response variable using the set of Stage 2 predictor variables. The tree was allowed to grow to a maximum of 55 terminal nodes, and if a node had less than 100 observations, it was not able to be split further. A classification and regression tree (CRT) method was used build the tree. Any variable entering the tree was required to have a minimum GINI index of 0.0001 to be considered. Based on the resulting tree, predictions were made based on the unadjusted prevalence rate of the response variable. These predictions were used to create a kappa statistic to assess the predictive ability of the classification tree.

All data management was performed using SAS V.9.3. Summaries and calculation of the kappa statistic were produced using the FREQ procedure and the logistic regression was performed using the LOGISTIC procedure of SAS V.9.3. And SPSS V.19 was used for the classification tree analysis.

results

The summaries and results from the logistic regression analyses of all of the variables can be found in Table 2. Of the 2260 students who met the inclusion criteria, 1720 (76.1%) were employed for pay during this time. In summary, type of school ($p = 0.0001$), whether the student (child) enjoyed secondary school ($p = 0.0226$), parents' expectation of a paid job for their child ($p < 0.0001$) and parents' expectation of a self-supportive child ($p <$

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table 1
summary of the employment status
as defined by any job in the two years prior to completion of the NLTS-2 study

Employment Status	N (%)	Wave 5
Yes	1720 (76.1)	np5t1c_a4c=1 or np5a4c=1 or np5t1b_a4b=1 or np5a5b=1
No	540 (23.9)	Any above variables = 0 and the rest = 0 or missing

table 2
summary of employment status and logistic regression analysis results
Frequencies may not sum to n=2640 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**	**NLTS-2 Variables**
Type of School	Regular	1870	85.1	1.654 (1.282, 2.134)	0.0001	np1d1b
	Other [ref]	330	14.9	-		np2d1b
Youth Enjoys School	A Lot	370	23.9	1.422 (0.988, 2.047)	0.0226	np2r1a_k3b
	Pretty Much	480	31.3	1.519 (1.074, 2.149)		
	A Little	430	28.0	1.042 (0.741, 1.466)		
	Not at All [ref]	260	16.8	-		
Youth is Feels Like a Part of School	A Lot	320	29.7	0.771 (0.422, 1.408)	0.7590	np2r1b
	Pretty Much	380	35.2	0.752 (0.416, 1.360)		np3r1b
	A Little	280	26.4	0.717 (0.391, 1.316)		np4r1b
	Not at All [ref]	90	8.6	-		
Parents' Expectation of a Paid job	Definitely Will	1770	81.4	20.150 (11.693, 34.726)	< 0.0001	np1j9
	Probably Will	320	14.6	4.527 (2.550, 8.036)		np2g12a
	Will not [ref]	90	4.0	-		np2g12a
Parents' Expectation of Self-Supportive Child	Definitely Will	780	37.1	12.977 (8.471, 19.880)	< 0.0001	np1j10
	Probably Will	820	39.0	5.517 (3.697, 8.234)		np2g12b
	Probably Won't	380	18.1	2.937 (1.926, 4.479)		np2g12b
	Definitely Won't [ref]	120	5.8	-		
Attended Community College	Yes	880	39.9	1.704 (1.384, 2.099)	< 0.0001	np5s3a_a2a
	No [ref]	1380	61.1	-		
Attended any sort of Vocational School	Yes	160	7.3	2.120 (1.339, 3.358)	0.0014	np5s5a_a3f
	No [ref]	2100	92.7	-		
Attended a 4-year University	Yes	510	22.7	1.747 (1.354, 2.255)	< 0.0001	np5s5a_a3i
	No [ref]	1750	77.3	-		
Had a Transition Plan	Yes	1230	93.2	0.874 (0.527, 1.450)	0.6028	npr1e1
	No [ref]	90	6.8	-		npr2e1
Had a Previous Paid Job	Yes	1970	87.0	13.699 (10.313, 18.198)	< 0.0001	np4hadpdjob
	No [ref]	300	13.0	-		np3hadpdjob
						np2hadpdjob
						np1l_6a_19
Received any Vocational Services	Yes	1120	49.5	1.136 (0.936, 1.379)	0.1952	np5t10a_c1a_a_ever
	No [ref]	1140	50.5	-		
Graduated High School	Yes	1970	87.4	1.980 (1.519, 2.580)	< 0.0001	np5s1a_a2e
	No [ref]	280	12.6	-		
Functional Mental Skills Score	High	1060	49.2	8.746 (6.085, 12.571)	< 0.0001	np1mentalskill
	Medium	940	43.5	5.455 (3.814, 7.802)		
	Low [ref]	160	7.3	-		
English Proficiency	Native English	1250	86.8	2.753 (2.007, 3.776)	< 0.0001	npr2b1
	Other [ref]	190	13.2	-		npr1b1

0.0001), whether or not the child went on to attend any community college ($p < 0.0001$), any sort of vocational school ($p = 0.0014$), or any 4 year university ($p < 0.0001$), whether or not the child had any previous job ($p < 0.0001$) or graduated high school ($p < 0.0001$), functional mental skills score ($p < 0.0001$), and English proficiency ($p < 0.0001$) were all significantly associated with the probability of having a job in the last two years of the study. Whether or not the child had a transition plan ($p = 0.60$) and if they received any vocational services ($p = 0.20$) were not significantly associated with employment status in the last two years of the study.

The results for the classification tree analysis on the employment status within two years of the end of the study can be found in Table 3. The primary split for the tree was whether or not a student had a previous job prior to the fifth wave. Those who were employed were universally more likely to be employed at the later point than those who were not employed with the percentage of employment ranging from 61.6% to 88.5%. Of those who have had a job, the parents' expectation of them either having a job or being self-supportive was predictive of employment. The receipt of vocational services and English proficiency was also a moderator of employment. The percentage of those who were employed in the past two years for those who did not have a prior job ranged from 5.6% to 40.0%. This rate was moderated by the parents' expectation as well, with higher expectations correlating with higher employment.

The kappa statistic for the classification tree is 0.40 (95% CI: 0.36, 0.44), indicating moderate predictive ability of the classification tree.

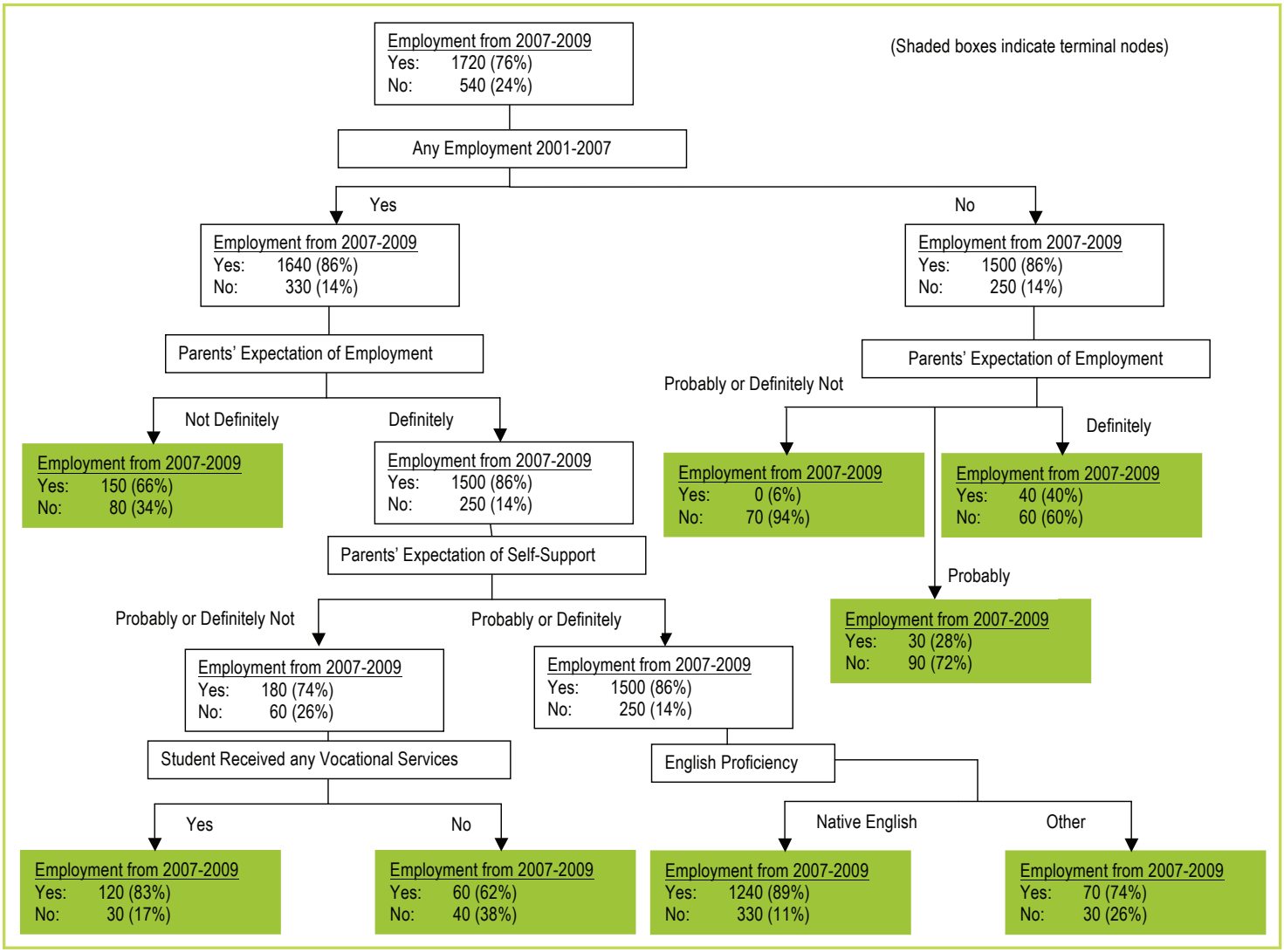
discussion

The bivariate analyses of each of the modifiable variables with employment status shows there are a number of modifiable variables that impact employment. The regression tree analysis shows that of these variables, a previous job history and the parents' expectations are important predictors of employment. These variables provide moderate predictive use.

This analysis was constrained so that the only predictor variables considered were those that can reasonably be assumed to have been asked of all participants. This excluded potential important predictors, such as drug and alcohol use that were only asked of the children and household responsibilities that were only asked of the parents. Other characteristics of employment conditional upon response included questions regarding transition plans and post-high school education. Future analyses can consider these sub-populations separately to assess how the conditional variables impact employment.

Previous research sought to determine permanent, non-modifiable characteristics of employment. In a similar fashion as the current analysis, several homogenous groups were found through a classification tree analysis. Future work will seek to determine how the modifiable variables in the current analysis affect the employment rate separately for each sub-population identified by the classification tree.

table 3



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