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Student employment and academic performance: an empirical exploration of the primary orientation theory

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ABSTRACT

This study empirically assesses the thesis that student employment only hurts academic performance for students with a primary orientation towards work (versus school). To this end, we analyse unique data on tertiary education students' intensity of and motivation for student employment by means of a state-of-the art moderation model. We find, indeed, only a negative association between hours of student work and the percentage of courses passed for work-oriented students. This finding may explain the contradictory results in the literature neglecting this factor.

I. Introduction

The peer-reviewed literature is inconclusive with respect to the significance and magnitude of the penalty of student employment in terms of educational performance (see, e.g. Kalenkoski and Pabilonia 2010; Neyt et al. 2017). Some studies, mainly those examining the impact on graduation rates, found a substantial, negative effect of more intensive student employment schemes (Body et al., 2014; Darolia 2014; Triventi 2014). In contrast, other contributions, especially those examining the impact of student work on exam scores, found a neutral effect (Schoenhals, Tienda, and Schneider 1998; Rothstein 2007).

To explain these nonpositive associations, the literature has mainly relied on the zero-sum theory. The key idea of this theory is that student employment crowds out time spent on activities that foster educational performance (Kalenkoski and Pabilonia 2009; 2012). However, several authors (Schoenhals, Tienda, and Schneider 1998; Warren 2002; Kalenkoski and Pabilonia 2009, 2012) have shown that an (additional) hour spent working does not necessarily decrease the time spent on school-related activities proportionally, which, to some extent, impairs the validity of this theory. An alternative explanation for the nonpositive association between (hours of) student work and educational

performance was brought forward by Warren's (2002) primary orientation theory. It suggests that this association is driven by socio-psychological factors, rather than by resource allocation. More concretely, Warren (2002) argues that student employment is mainly detrimental for students with a primary orientation towards work (in contrast to students with a primary orientation towards school, who do not let their studies suffer from their employment). Combining this starting point with the assumed higher working hours among these work-oriented students, this theory predicts that failing to control for students' primary orientation biases the effect of student employment on academic performance downwards (i.e. more negative). However, as their data did not comprise information on this primary orientation, former contributions were not able to test the latter theory.

This study explores the validity of the primary orientation theory with respect to the association between student employment and academic performance for students in higher education. To this end, we analyse unique data, capturing both the number of hours worked by students and their motivation for this student employment, by means of a state-of-the-art moderation model. This allows us to test the following hypotheses:

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H1: The association between hours of student employment and academic performance is less negative when controlling for students' primary orientation.

H2: The association between hours of student employment and academic performance is less negative for students with a primary orientation towards school.

II. Method

Data were obtained through an online survey among students at the University of Antwerp in Flanders (Belgium).[1] This survey was online between 22 March 2016 and 22 April 2016 and was promoted via digital platforms (of the university). 255 students in full-time education completed the full questionnaire. This questionnaire comprised 4 sections. In the first section, participants were surveyed on their background characteristics (age, gender, education level of both mother and father and number of siblings). These characteristics feature as control variables in our analyses. The next section surveyed the students on the measure of student employment often used in the literature (Rothstein 2007; Darolia 2014; Triventi 2014), that is, the average number of hours that students worked per week during the (previous) academic year.[2] This is the main independent variable in our analyses. The third section of the questionnaire assessed primary orientation towards school (versus work) among the participants employed for at least 1 hour of work per week (on average). More concretely, following Warren (2002), these students had to indicate the extent to which they agreed with 9 items[3] assessing their primary orientation, measured on a 5-point Likert scale. By taking the average of the scores for

these 9 items,[4] an overall index of primary education towards school, ranging from 1 to 5, was obtained for each participant.[5] This variable functions as a control variable and/or moderator. The last section of the survey considered the students' academic performance. More concretely, we surveyed the students on the percentage of courses (included in their programme of the previous academic year) they passed (i) on the first try and (ii) on the first and second tries. The former variable is the dependent variable in our analyses.[6]

As the crucial items about primary orientation were only relevant for the 169 participants with at least 1 hour of student work,[7] we restricted our research sample to these individuals.[8] In Table 1, we report summary statistics for the complete sample, a subsample of work-oriented students (i.e. students with a primary orientation index below the mean) and a subsample of more school-oriented students (i.e. students with a primary orientation index above the mean). Comparing these 2 subsamples reveals some interesting differences. First, in line with Warren (2002), work-oriented students are employed for substantially more hours per week than school-oriented students. Second, when looking at the academic performance of these 2 groups, work-oriented students perform considerably worse. That is, these students pass a lower fraction of their courses. This is, to some extent, in line with the primary orientation theory. Finally, work-oriented student workers differ from school-oriented students in socio-economic background. Indeed, the former subsample comprises relatively more males, having fewer siblings and lower educated parents. As these background characteristics may also correlate with academic performance, it is important to control for them in our analyses.

Using the data described earlier, we estimate 3 models to test H1 and H2. The first model measures the

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[1]For information on the Flemish education system, we refer to De Ro (2008) and Baert and Cockx (2013). In a nutshell, the Flemish tertiary education system is accessible for all students with a secondary school diploma, without any entry exam (except for students who want to study medicines). 7 universities and 22 colleges are spread over less than 15,000 km² resulting in a high regional diffusion of providers of tertiary education. Tuition fees are comparatively low (and financial aid is provided to students from low-income households). The system is flexible in terms of the pace at which students accumulate credits.

[2]So, student jobs during the summer holidays were not considered as student employment.

[3]An overview of these items can be found in Table A1 in the Appendix.

[4]4 items had to be reverse scored first.

[5]Combining these 9 items to obtain a single indicator for primary orientation was permitted, as Cronbach's α, indicating these 9 items' internal consistency, was sufficiently high ($\alpha = 0.820$).

[6]Analyses based on the second performance indicator yielded very similar results and are available on request.

[7]The fact that about two-thirds of the surveyed university students had a student job corroborates with the statistics provided in Baert et al. (2016).

[8]Consequently, we only contribute to the literature focussing on the intensive margin of labour supply as a student worker (i.e. number of hours conditional on working at least 1 hour) and not to the literature focussing on the extensive margin (i.e. whether or not to work); The resulting sample size is rather small compared with the sample sizes presented in the former contributions to this literature in economics. However, it is comparable with the sample size in many moderation analyses presented in peer-reviewed literature in general (Hayes 2013). Moreover, as shown in Section III, it is sufficient to identify a significant moderation effect. Thereby, we argue that this sample size is sufficient to satisfy the exploratory aim of this research.

Table 1. Data description.

| Variable	Description	Complete sample of student workers (N = 169)		Subsample with school orientation below mean (N = 74)		Subsample with school orientation above mean (N = 95)	
		Mean	SD	Mean	SD	Mean	SD
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A Background characteristics							
Female	1 if the student is female, 0 otherwise.	0.698	0.460	0.635	0.485	0.747	0.437
Age	Integer.	22.592	2.718	23.068	3.341	22.221	2.054
Number of siblings	Integer.	1.681	1.014	1.514	0.832	1.811	1.123
Education level mother: low	1 if the student's mother's educational level is below secondary education, 0 otherwise.	0.195	0.398	0.243	0.432	0.158	0.367
Education level mother: medium	1 if the student's mother's educational level is secondary education, 0 otherwise.	0.331	0.472	0.311	0.466	0.347	0.479
Education level mother: high	1 if the student's mother's educational level is tertiary education, 0 otherwise.	0.474	0.501	0.446	0.500	0.495	0.503
Education level father: low	1 if the student's father's educational level is below secondary education, 0 otherwise.	0.170	0.378	0.189	0.394	0.158	0.367
Education level father: medium	1 if the student's father's educational level is secondary education, 0 otherwise.	0.300	0.458	0.320	0.471	0.270	0.448
Education level father: high	1 if the student's father's educational level is tertiary education, 0 otherwise.	0.530	0.500	0.490	0.503	0.570	0.498
B Student work experience							
Hours worked per week	Integer (higher than or equal to 1).	10.170	6.151	11.890	6.788	8.820	5.259
C Primary orientation towards school							
	Continuous index between 1 and 5. Higher values indicate an orientation towards school.	3.549	0.641	2.994	0.434	3.981	0.396
D Educational performance							
Courses passed	Continuous fraction between 0 and 1.	0.785	0.226	0.739	0.236	0.820	0.213

Note: For more information on the data (gathering), we refer to Section II.

association between hours of student work and fraction of courses passed when only controlling for students' background characteristics – this is our benchmark approach, mimicking the literature discussed in Section I. The second model also controls for the primary orientation index. In the third model, we examine whether the association between student work and academic performance is heterogeneous by students' primary orientation. We do this by means of a state-of-the-art moderation model (Hayes 2013), with primary orientation as the moderator for the relationship between hours worked per week and the fraction of courses passed. This model is depicted in Figure 1. It

allows us to (i) test whether the interaction between hours of student work and primary orientation towards school is statistically significant and (ii) simulate the association between hours of student work and fraction of courses passed for particular values of the primary orientation index.

III. Results

The estimation results for our 3 models can be found in Table 2. The variables 'hours worked per week' and 'primary orientation towards school' were mean-centred, to facilitate the comparison
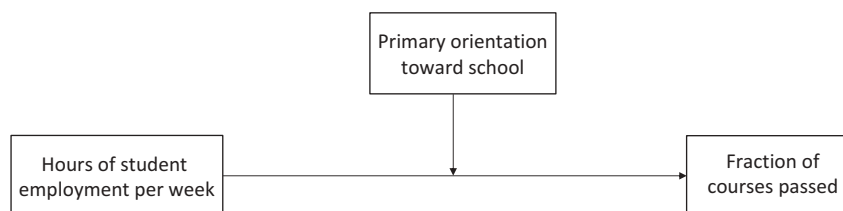
Figure 1. Moderation model.

of the 3 models' results.[9] The estimation results of model 1 are in line with the former studies finding a negative association between hours of student work and academic performance. Indeed, increasing the working time by 1 hour per week is associated with a decrease in the percentage of courses passed of 0.9 percentage points.

Next, the primary orientation index, added as a control variable in model 2, is positively associated with the fraction of courses passed – this association is only weakly significant. In line with the expectations of Warren (2002), school-oriented student workers pass more courses compared to work-oriented student workers. However, the inclusion of this variable has no substantive effect on the association between hours of student work and fraction of courses passed. Thus, no firm evidence for H1 is found.

Next, when looking at the estimation results of our mediation model (model 3; panel A), we see that the significance of the hours worked per week and primary orientation towards school variables becomes lower. The most interesting result, however, is that their interaction is significantly different from 0. In addition, its positive sign is in line with H2. Panel B presents the simulated association between an additional hour of student work and the fraction of courses

passed for 3 reference values of the primary orientation index.[10] First, for (hypothetical) individuals with a primary orientation index that is 1 SD below the mean (i.e. student workers with a relative orientation towards work), working 1 additional hour per week is associated with a significant decrease in their percentage of courses passed of 1.3 percentage points. Second, for individuals with an average primary orientation, this association is about half as large and only significant at the 10% level. Finally, no significant association between student work and academic performance is found for relatively school-oriented student workers (i.e. those with a primary orientation index that is 1 SD above the mean). A visual representation of this moderation effect, by analogy with Field (2013), is depicted in Figure 2. Again, in line with H2, this shows that for higher values of the primary orientation index, that is, when students are more school-oriented, the negative relationship between student work and academic performance fades out.

IV. Conclusion

This study was, to the best of our knowledge, the first to assess the primary orientation theory with respect to the

Table 2. Regression analyses.

	Model 1	Model 2	Model 3
Panel A: Regression coefficients			
Hours worked per week (mean-centred)	−0.009*** (0.003)	−0.008** (0.003)	−0.006* (0.003)
Primary orientation towards school (mean-centred)		0.049* (0.028)	0.044 (0.028)
Hours worked per week × primary orientation towards school			0.011** (0.004)
Female	0.019 (0.039)	0.013 (0.039)	0.005 (0.038)
Age	0.001 (0.007)	0.002 (0.007)	0.003 (0.007)
Number of siblings	0.015 (0.017)	0.010 (0.017)	0.004 (0.017)
Education mother: low (reference)			
Education mother: medium	−0.012 (0.051)	−0.010 (0.051)	−0.009 (0.050)
Education mother: high	−0.070 (0.051)	−0.065 (0.051)	−0.064 (0.050)
Education father: low (reference)			
Education father: medium	−0.051 (0.053)	−0.039 (0.053)	−0.021 (0.052)
Education father: high	0.017 (0.052)	0.030 (0.052)	−0.042 (0.051)
Constant	0.763*** (0.172)	0.750*** (0.172)	0.742*** (0.169)
Panel B: Moderation effect			
Moderator value: 1 SD under mean primary orientation towards school			−0.013*** (0.004)
Moderator value: Mean primary orientation towards school			−0.006* (0.003)
Moderator value: 1 SD above mean primary orientation towards school			0.001 (0.005)
Observations	169	169	169

Notes: The presented statistics are coefficient estimates (Panel A) and simulated moderation effects (Panel B) with SEs between parentheses. The dependent variable is the fraction of courses passed. Model 3 is based on the estimation of a moderation model using the PROCESS procedure as described in Hayes (2013).
*** (**; *) indicates significance at the 1% (5%; 10%) level.

[9]This is common practice in moderation analyses (Hayes 2013).
[10]Note that the 3 categories of students we distinguish from here on do not correspond to the 2 distinguished in Table 1.
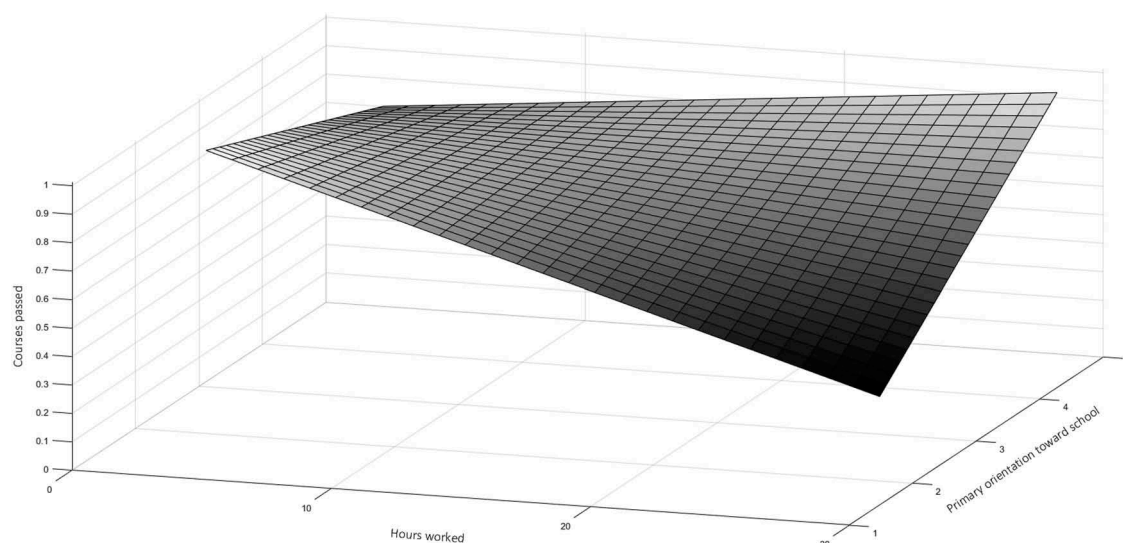
Figure 2. Hours worked and courses passed for different values of primary orientation index.

nonpositive association between student employment and academic performance reported in the literature. In line with our expectations, a negative relationship between hours worked and academic performance was only found for students with a primary orientation towards work (versus school). This result is of interest both for academics and for policymakers. First, from an academic point of view, our results could explain the coexistence of neutral and negative effects of student employment reported in the literature. Indeed, different studies are likely to examine groups of students that differ with respect to their primary orientation. Second, from a policy perspective, our results indicate that students should be discouraged from prioritizing their student job over their studies.

We end this article by recalling its explorative nature. Our measures of primary orientation (and student employment) may correlate with unmeasured determinants of academic performance, for which we were not able to control by means of our regression and mediation analyses. Consequently, no causal interpretation of our results is possible. Therefore, we are in favour of research building on this study by analysing data with exogenous variation in primary orientation towards school versus work (and student employment).

Disclosure statement

No potential conflict of interest was reported by the authors.

References

Baert, S., and B. Cockx. 2013. "Pure Ethnic Gaps in Educational Attainment and School to Work Transitions. When Do They Arise?" *Economics of Education Review* 36: 276–294. doi:10.1016/j.econedurev.2013.07.006.

Baert, S., O. Rotsaert, D. Verhaest, and E. Omey. 2016. "Student Employment and Later Labour Market Success: No Evidence for Higher Employment Chances." *Kyklos* 69: 401–425. doi:10.1111/kykl.v69.3.

Body, K. M. D., and L. Bonnal. 2014. "Does Student Employment Really Impact Academic Achievement? The Case of France." *Applied Economics* 46: 3061–3073. doi:10.1080/00036846.2014.920483.

Darolia, R. 2014. "Working (and Studying) Day and Night: Heterogeneous Effects of Working on the Academic Performance of Full-Time and Part-Time Students." *Economics of Education Review* 38: 38–50. doi:10.1016/j.econedurev.2013.10.004.

De Ro, J. 2008. *Education in Flanders. A Broad View on the Flemish Education Landscape*. Brussels: Agency for Educational Communication Publications.

Field, A. 2013. *Discovering Statistics Using IBM SPSS Statistics*. Thousand Oaks: Sage.

Hayes, A. F. 2013. *Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach*. New York: Guilford Press.

Kalenkoski, C. M., and S. W. Pabilonia. 2009. "Does Working while in High School Reduce US Study Time?" *Social Indicators Research* 93: 117–121. doi:10.1007/s11205-008-9412-7.

Kalenkoski, C. M., and S. W. Pabilonia. 2010. "Parental Transfers, Student Achievement, and the Labor Supply of

College Students." *Journal of Population Economics* 23: 469–496. doi:10.1007/s00148-008-0221-8.

Kalenkoski, C. M., and S. W. Pabilonia. 2012. "Time to Work or Time to Play: The Effect of Student Employment on Homework, Sleep, and Screen Time." *Labour Economics* 19: 211–221. doi:10.1016/j.labeco.2011.10.002.

Neyt, B., E. Omey, D. Verhaest, and S. Baert. 2017. "Does Student Work Really Affect Educational Outcomes? A Review of the Literature." Unpublished manuscript.

Rothstein, D. S. 2007. "High School Employment and Youths' Academic Achievement." *Journal of Human Resources* 42: 194–213. doi:10.3368/jhr.XLII.1.194.

Schoenhals, M., M. Tienda, and B. Schneider. 1998. "The Educational and Personal Consequences of Adolescent Employment." *Social Forces* 77: 723–761. doi:10.2307/3005545.

Triventi, M. 2014. "Does Working during Higher Education Affect Students' Academic Progression?" *Economics of Education Review* 41: 1–13. doi:10.1016/j.econedurev.2014.03.006.

Warren, J. R. 2002. "Reconsidering the Relationship between Student Employment and Academic Outcomes: A New Theory and Better Data." *Youth & Society* 33: 366–393. doi:10.1177/0044118X02033003002.

Appendix

Table A1. Items measuring students' primary orientation towards school.

My student job is an important aspect of who I am as a person.
Being employed is a central aspect of my life.
I enjoy my student job more than I enjoy going to school.
Doing well at work is more satisfying to me than doing well in school.
In the long run, doing well in school will be more advantageous than doing well at work.
Doing well in school is an important aspect of who I am as a person.
Doing well in school is a central aspect of my life.
Doing well in school is more satisfying to me than my student job.
If I had to choose between doing well in school and doing well at work, I would choose to do well in school.

Note: the first 4 items were reverse scored when calculating the overall primary orientation index.