What About Prospective Fist-Generation Students Before Their Transition to Higher Education?

An Analysis on Students Their Demographic Characteristics, Educational Intentions, and Parental Expectations in Limburg

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***Abstract*—A great body of research demonstrated that first-generation students (FGS) face significant barriers while transferring to higher education. Contrary, not much is known about this subject in The Netherlands. Using statistical analysis, the research will offer a primary examination how this group of students are doing during high school (prospective FGS) in track havo and vwo before their potential transition to higher education in the province of Limburg (The Netherlands). The analysis will provide a regional insight into the demographic characteristics, parental expectations, and educational intentions of this group of students compared to their peers. The results show that prospective FGS differ in the distribution of track, their educational intentions and the educational expectations their parents have. These results can inform future policy changes to accommodate educational equity among all student during different phases of their education in Limburg.**

Keywords—first-generation students, quantitative analysis, higher education transition, accessibility, equity, social mobility, The Netherlands, Limburg, SDG 1, SDG 4, SDG 10, SDG 17

I. Introduction

A large body of literature from the United States (US) indicate that students whose parents do not have a degree from higher education (i.e. associate degree (hbo) or university (wo)) face significant barriers while transferring from secondary to higher education [1]–[3]. Moreover, comparative studies show that this group of prospective first-generation students (after this prospective FGS) are less informed about higher education; receive less support; face financial and cultural barriers; and have difficulties navigating through the application process [1], [4]. Even when The Netherlands scores well on the quality of their educational system, Dutch educational policy reports show similar trends as those in the US regarding educational equity among first-generation students [5]–[8]. Since educational equity is of great importance for societies social cohesion and social mobility [9], [10], it is a necessity to secure this among all students in all the phases of their education.

While nothing is known about these prospective FGS regionally in Limburg, this research aims to examine how these students are doing before their possible transition to a higher educational institution. For the analysis a a multinomial logit regression (mlogit) was conducted and marginal errors were calculated on the data of the Onderwijs Monitor Limburg (OLM). This analysis enabled to examine the differences between prospective FGS and their peers of which we found a differentiation.

II. Background

A. Who is a Prospective First-Generation Student?

There is no general agreement on the criteria that makes a first-generation student (FGS). However, most researchers regard the parental educational attainment as the defining criteria [3]. As such, in this research FGS are broadly defined as students whose parents do not hold a degree from higher education. This implies that these students are (or will become) the first in their family to enroll in a three- or four-year program in higher education. High school students whose parents do not have a degree from higher education are mostly defined as pre-college FGS [1], [4]. However, in this research I will define this group as *prospective FGS*. I will not differentiation between the first or second child that has transferred or aims to transfer to higher education.

B. Accesibility Barriers of Prospective FGS

Research demonstrated that FGS are disadvantaged in different phases of their education. They do not only face issues once they are enrolled but also before the transition to higher education [1], [4]. There are several factors at play that influences the experience of this group of students. The most evident one is that students whose parents have obtained a degree from higher education are more likely to transition to college (i.e in the Netherlands equal to hoger begroepsonderwijs (hbo)) or university (i.e. in the Netherlands equal to wetenschappelijk Onderwijs (wo)) [3]. For students whose parents have a lower educational attainment this might not be the case. Literature on these students shows that there are several reasons why they fall behind in their educational transition. First of all, studies have found an association between FGS coming from a lower socioeconomic background [11]–[13]. This factor might play an important role in the decision to transition to higher education. In addition, research demonstrated that students who come from a lower socioeconomic background are less likely to engage their children culturally and as a result the children obtain a lower educational attainment [14].

Met opmerkingen [GL(U/A1]: Reference

Secondly, a study by Engle [15] demonstrated that parents without a degree from higher education have on average a lower expectation of the educational obtainment of their children. In line with these findings, other studies have found that prospective FGS are generally academically less prepared and have a lower individual educational intention and expectation [1], [4], [15]. As most research described above has been conducted in the US, it seems of great importance and interest to examine what is known about this group of students in The Netherlands.

C. Prospective FGS in The Netherlands

There only exists a small body of research on prospective as current FGS, of which most focus on gaining a national insight about these students. A number of Dutch national educational policy reports showed that Dutch prospective as current FGS are generally more disadvantaged compared to their peers, [6], [7], [16]. Comparable to the general trends of the previous years, the results identified that Dutch prospective FGS have a lower motivation and intention to transfer to a program in higher education; are more likely to get a bad advice regarding their educational and professional career; are less knowledgably about study loans (61% compared to their peers); have an aversion to take up a loan; and do not orientate or inform themselves actively on programs within higher education. Moreover, once enrolled, the number show that FGS students were more likely to choose to attain an associate degree (hbo) instead of university degree [6]. Lastly, even when FGS were enrolled in higher education, they still faced social and financial barriers which hindered successful integration in an academic environment [5].

Correspondingly to the research from the US, Dutch prospective FGS face similar accessibility barriers. As there are limited studies on these students regionally, it is of great importance to examine if these students have the necessary regional support to make the transition to higher education.

III. Methods

A. Research Question

For this study, there were several objectives. First of all, it was of interest to identify were the biggest group of prospective FGS are situated in Limburg. Second of all, since research has shown that these students have a lower educational expectation, it was questioned what the educational intentions are of this group of students. Thirdly, since parents might play an important supporting role in their child's decision of their educational career, it seemed evident to look at the parental educational expectation for prospective FGS compared to their peers. Lastly, it has been shown that engaging children in cultural activities can result in a higher educational attainment, it was relevant to compare prospective FGS their engagement in extracurricular activities in this analysis.

B. Instruments

For this research, the longitudinal data of the Educative Agenda Limburg (EAL) the Onderwijs Monitor Limburg (OML) was used for this analysis (Educatieve Agenda Limburg, 2019). This data set includes different survey questions collected starting in kindergarten to secondary school and which were filled in by teachers, parents, and students in Limburg.

For the analysis 6 variables of interest were selected for the analysis: first-generation status, demographic variables (gender, track, and region), student and parental expectation of the highest degree to be obtained (hbo, wo bachelor, wo master), and the student's participation in extracurricular activities (no and yes).

C. Participants

The full data sample for both years consisted of 18,770 respondents. However, only 9,416 respondents were selected for the analysis due to the inclusion criteria that targeted students in track havo and vwo (in year 3 till 5 and 3 till 6) because these tracks allow for an easier transition to a program in higher education. In the selected sample, students from track mbo and lower were excluded. Moreover, only the data from recent years were selected. As such only years 2014/15 and 2016/17 were included. The data of 2017/18 was unfortunately not available.

D. Procedures

The data was analyzed by estimating a multinomial logit regression which tested whether our independent variables affected our dependent variable (i.e. first-generation status) [17]. After the regression, given that a student is a prospective FGS or a Non-FGS, the hypotheses on the differences between the different groups of students was calculated using a post-estimation technique (i.e. calculating the marginal effects) to examine the specific outcomes. As a result, the difference could be examined in the probabilities of students their educational intentions, parental expectations and involvement in extracurricular activities depending on the different student groups (non-FGS, a prospective FGS, or having one parent with a degree from higher education). Further, I control for variables such a gender, tracks, geographic location. Only 3,001 respondents were included in the analysis due to the missing responses on certain selected independent variables.

E. Limitations

The high rate of none respondents for some variables of interest is the biggest limitation of this study. There were several reasons for the missing's. Firstly, for some groups and regions there was a low response rate on the parental survey. This was because the parents needed to fill in the survey and make sure their child(ren) would bring it back to school. Some parents, of which parents of prospective FGS were the biggest, opted out by not submitting their responses. Further, some survey questions were only taken from a number of students but not all. This was due to the limited time some schools had to enable their students to take the extended questionnaire. In addition, no probability weights could be determined since the survey depends on the participation of the schools, students, and parents [19]. As such, the sample selection bias might have influenced the significance levels which makes the results less representable and generalizable [18].

IV. Results

The analysis shows that there is a significant difference between Non-FGS, prospective FGS, and one parent with a degree from higher education. As such, the factors that have an impact on prospective FGS were determined. The results in Table 1 (See Appendix Table 1) demonstrates the estimated marginal effects of the control variables on the different student groups. A positive marginal effect implies

that an increase in explanatory variable for a given individual increases the probability that a certain student group has an effect on it. A negative marginal effect has less probability a certain student has an effect on it.

Firstly, the results on the demographic differences show an unequal distribution between the prospective FGS and Non-FGS, where FGS are more likely to be enrolled in track havo, whereas Non-FGS are more likely to be found in track vwo. Secondly, the demographic results demonstrate that there is a negative effect for all locations for the geographical location of prospective FGS. The results show that the probability of prospective FGS being in other regions than North-Limburg are significantly lower. On the other hand, Non-FGS showed to have a significant higher probability to be situated in regions such as Middle-Limburg, Maastricht and Hills, and West-Mine. Nevertheless, no significance was found for the region Parkstad. Thirdly, a lower probability was found for the expectation of highest to be obtained degree by prospective FGS. The results demonstrate that this group of students are less likely to expect themselves to enroll in a bachelor's or master's program. Contrary, Non-FGS have a significant higher likeliness expecting themselves to obtain a bachelor's or master's degree from university. Fourthly, parents of prospective FGS similarly have lower expectations for their children to obtain a master's degree from university. Whereas, on the other hand, parents of Non-FGS have a higher probability to expect their children to enroll in a university master's program. Nevertheless, no significant differences in expectations for their children to enroll in a university bachelor or an associate degree were found between the different student groups for the (i.e. Non-FGS and prospective FGS). Finally, the marginal effects also demonstrated that prospective FGS are less likely to engage in extracurricular activities. No significant probabilities were found for the gender between prospective FGS and their peers.

Taken together, the following results can be summarized as followed: In comparison between Prospective FGS and Non-FGS, the former group of students are more likely to be situated in North-Limburg; are more likely to be enrolled in track havo; have lower expectations to enroll into a bachelor's degree; their parents have a lower expectations for them to obtain a master's degree from university; and are less likely to engage in extracurricular activities besides school.

V. Conclusion & Implications

The results show that there are significant differences in demographic characteristics, educational intentions and parental expectation between prospective FGS and their peers. The most significant results are that the students and parents of prospective FGS have a lower expectation of the highest educational attainment of their child. Based on these results and the previous finding about Dutch prospective FGS, several recommendations can be proposed:

- More research should be conducted on this group of students in Limburg about the need for additional support in their transition to higher education. For example, the following questions need to be answered: "Do prospective FGS in Limburg would benefit from additional homework support?", "Do prospective FGS in Limburg need more support in their application procedures to a program ?", "Would prospective FGS in Limburg benefit from mentoring during their transition to higher education?", and so forth.
- Research suggested that implementing interventions as coaching and mentoring for this group of students can improve their transition from secondary to higher education [11]. As such, since no initiatives are in place to support these students with their transition to higher education in Limburg, it is of interest to examine if there are resources available to implement such a mentoring program in Limburg. By monitoring and evaluating such an implementation, it can provide an insight about if these students would become more confident in their study choice and its effect on their social mobility within the region.

Conclusively, this study showed that there is a difference between prospective FGS and their peers in Limburg regarding their demographics, their educational intentions, their parental educational expectations, and their engagement in extracurricular activities. If these students have a need for support resources should be allocated to more research and the interpenetration and monitoring of interventions that can lower the barriers to higher education for these students in Limburg. Each student has a right to educational success, might that be a prospective FGS, a student with only one parent or both parents with a degree from higher education.

Role of student

Liza Gordin the author of this article. This is only a small division of the results that she gained in her extensive analysis for her bachelor thesis, conducted as a partial requirement for the Bachelor of Arts at University College Maastricht in 2019. The thesis was supervised under Trudie Schils from Educatieve Agenda Limburg. Secondary data was used for the analysis, and the results were finally presented in a extended report on this group of students.

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Appendix: Table 1

Table 1: The marginal effects of multinomial logit regression

	Marginal Effects			
Independent variable	Non-FGS	FGS	One Parent Higher education	Unknown
havo (base)				
vwo	0.0653***	-0.0484**	0.0126	0.00431
	(0.0235)	(0.0218)	(0.0231)	(0.00300)
gender male (base)				
female	0.0135	0.0223	0.0342**	0.00167
	(0.0171)	(0.0165)	(0.0172)	(0.00227)
North Limburg (base outcome)				
Middle-Limburg	0.0685**	-0.0640**	0.00662	0.00219
	(0.0275)	(0.0269)	(0.0278)	(0.00430)
West-Mine	0.105***	-0.0945***	0.00865	0.00222
	(0.0306)	(0.0294)	(0.0306)	(0.00385)
Maastricht and Hills	0.0999***	-0.0949***	0.00325	0.00175
	(0.0271)	(0.0263)	(0.0274)	(0.00369)
Parkstad	0.0145	0.0114	0.00197	0.00106
	(0.0280)	(0.0287)	(0.0289)	(0.00393)
Expected degree by student hbo (base)				
wo bachelor	0.0491*	-0.0493**	0.00328	0.00314
	(0.0252)	(0.0236)	(0.0248)	(0.00479)
wo master	0.0802***	-0.0730**	0.000695	-0.00651**
	(0.0309)	(0.0291)	(0.0305)	(0.00331)
Expected degree by parent hbo (base)				
wo bachelor	0.0231	0.0104	0.0299	-0.00356***
	(0.0296)	(0.0310)	(0.0301)	(0.00113)
wo master	0.165***	-0.131***	-0.0531**	0.0188
	(0.0293)	(0.0245)	(0.0271)	(0.0200)
No extracurricular activities (base outcome)				
Yes, extracurricular activities	0.0342	-0.0661***	0.0331	0.00127
	(0.0242)	(0.0223)	(0.0243)	(0.00424)
Number of Observations	3,001			
Log likelihood function	-32.132.019			
Likelihood ratio X2 test d.f.	0.0000			
Pseudo R2	0.0415			

Authors Note: Source EAL. Full sample n = 3,001 out of n = 9416. The marginal effect is $\partial P(y = j)/\partial x$, j = 1, 2, 3, and 4. The ∂x refers to the discrete change from 0 to 1. The figure in parentheses is the standard error for the estimated marginal effect