

Bachelorarbeit für den Bachelorstudiengang Soziologie an der LMU München

The Influence of Psychosocial Factors on the Intention to Pursue a Master's Programme after the Bachelor's Degree

*An Analysis Based on the 2021 German Student Survey conducted by
DZHW*

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München, 12. Dezember 2024

Abstract

This study was conducted using data from the 2021 German Student Survey by the DZHW. The effects of psychosocial factors on the intention to pursue a master's degree were analysed using regression models across different age groups. Three hypotheses were tested, each suggesting that positive personal factors increase the likelihood of the ambition to continue the academic education. Specifically, these hypotheses examine the impact of a favourable self-assessment of academic performance, a strong self-concept, and a positive perception of support at the university. The key findings are summarized as follows: Self-assessment showed a consistently strong positive effect across all age groups, with the largest effect observed in students aged 23 to 25 years. This suggests that students who have a more favourable self-assessment are more likely to express an intention to further education. Self-concept demonstrated a negative effect in all age groups, although this effect was weakest for students aged 31 years and older. This indicates that a higher self-concept is associated with a reduced likelihood of the transition, with the effect being most pronounced in younger students. The perception of support at university exhibited mixed results. It had a significant negative effect for students aged under 22 years, indicating that a higher perception of support is associated with a lower likelihood of pursuing a master's degree. However, this effect was not significant in older age groups. Both, the negative effects of self-concept and support, are counterintuitive findings, whose origins were not entirely clear, so further investigations are needed. Parental education had a positive effect in all age categories, with the strongest impact observed in the youngest age group. This suggests that students with academically educated parents are more likely to intend a continuation of their education, regardless of their age. The subject of study was only significant for students aged 20 to 22 years, showing a positive effect on the intention to transition to further studies. For the other age groups, the effect of the study program was not statistically significant. In summary, only the first hypothesis, which suggests that self-assessment is a positive factor influencing the intention to pursue a master's degree, could be confirmed by the results. These findings highlight the importance of considering psychosocial factors when examining students' intentions to pursue further education, while also demonstrating that the effects can vary across different age groups.

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1 Introduction

The *Bologna Declaration* (EHEA 1999) celebrated its 25th anniversary this year. Since the early 2000s, when the first German universities adopted the two-tier-system with bachelor's and master's programs, 91.2% of all degree programs have followed this model until today¹. This shift has led students to make a new educational decision: Should they leave it with their bachelor's degree or continue their academic education with a master's program?

This decision has already been extensively researched to understand all the factors that influence it. So far, the focus has primarily been on the objective criteria of decision-making, such as social background or socioeconomic conditions. This research project aims to complement these previous approaches by considering psychosocial factors as well, which has important implications for understanding decision-making in higher education. The main research question and goal of this study is to determine to what extent psychosocial factors influence students' decisions to pursue a master's degree after completing their bachelor's. The aim is to analyse the role of subjective aspects such as self-assessment, self-concept, and the perception of the social climate and support at the university in this decision-making process.

The choice for or against transitioning to a master's program is an important step in the educational path of many students. A better understanding of the subjective factors influencing this decision can help universities and educational policymakers develop targeted support measures and improve study conditions. If students do not possess enough self-confidence and do not assess their personal performance highly enough to successfully complete further studies, they do not even need to consider how a master's degree would improve their career prospects and prestige, and how to manage it concerning objective criteria such as funding.

Previous studies have shown that both, objective and subjective factors, influence this decision. While the focus has been primarily on objective factors such as educational background, migration background, socioeconomic factors, and the choice of university type, there are only a few contributions within current higher education research that address subjective decision factors. The following examination aims to complement the existing research by focusing on these aspects.

The decision for or against a master's programme has far-reaching societal implications. A better understanding of decision-making processes can help promote equal opportunities in the education system and increase educational participation. This is particularly important in a

¹ [Deutscher Bundestag - Umsetzung der Ziele des Bologna-Prozesses 2021 bis 2024](#) (18.04.2024)

meritocratic knowledge society where higher education degrees are becoming increasingly significant.

The following analysis focuses on students' responses in the 2021 Student Survey conducted by the German Center for Higher Education Research and Science Studies (DZHW). Only factors related to personal disposition that influence this decision are considered.

This study is structured as follows: First, a literature review will present the current state of research on several factors and their influence on students' educational decisions. This is followed by the theoretical framework, which outlines the theoretical model that underpins the analysis. The data and methods section will then detail facts about the survey, the data used and the methodology of the study. The results section will present and interpret the findings of the analysis. Finally, the discussion will contextualize the findings within existing research, and the conclusion will summarize the main insights and derive implications for practice and further research.

2 Literature Review

In the past years, several studies have been published within the higher education research field, that focus on the transition from bachelor's to a master's program in Germany. This literature review will merely focus on the most relevant examinations of this topic. The table on the next page provides a concise overview of these studies, highlighting the data used and the estimation techniques. The subsequent paragraphs will briefly summarize the results.

Auspurg & Hinz (2011) analysed the background-specific transition behaviour and found that 55% of all bachelor graduates come from academic backgrounds. These students are significantly more likely to have completed a period abroad, and at least one internship. Non-academic graduates more often completed an apprenticeship or other sorts of qualification before their bachelor's degree, and these students are overrepresented in humanities. The authors also note that the decision to pursue further studies was mostly made during the bachelor's program, regardless of social background. The transition rates are 78.8% for graduates from academic households and 70.2% for graduates from non-academic ones. The authors conclude from their findings that background-specific transition behaviour is less controlled by external selection by universities and more due to self-selection by the different decision-making behaviour of graduates.

Overview of Research Studies focused on Master's Transition in Germany

<i>Study</i>	<i>Focus</i>	<i>Data</i>	<i>Estimation Strategy</i>
<i>Auspurg & Hinz (2011)</i>	background-specific transition behaviour	Internal Graduate Surveys (2005-2008), Universität Konstanz, Germany	binary logistic regression, counterfactual analyses, AMEs as results
<i>Kretschmann et al. (2017)</i>	social background effects to transition intention	NEPS, Start Cohort 5, 2012	binary logistic and hierarchical regressions, Odds Ratios as results
<i>Lörz et al. (2019)</i>	determinants of transition: performance, costs, returns, socio-demographics and educational biography	DZHW German Panel Study of School Leavers 2010	binary logistic regression, AMEs as results
<i>Reimer, Schwabe (2023)</i>	social inequality at transition	DZHW German Graduate Panels 2005, 2009, 2013, 2017	linear probability models, Coefficient Estimates as results
<i>Stefani, Hinz, Strauß, (2023)</i>	attractiveness of master's programs	DZHW Student Survey in Germany 2021	multivariate regressions, Coefficient Estimates as results
<i>Quast, Mentges & Buchholz (2023)</i>	underrepresentation of students from less privileged backgrounds	DZHW German Panel Study of School Leavers 2018	binary logistic regression, decomposition analyses, AMEs as results

Table 1: Overview of Research Studies focused on Master's Transition in Germany

Kretschmann et al. (2017) showed that social background impacts a student's intention to further studies. This influence is evident in the choice of university type: Students from higher educational backgrounds tend to choose more prestigious fields at universities, while those from less educated backgrounds prefer universities of applied sciences. These differences affect transition rates and career prospects after a bachelor's degree. They also identified significant differences between fields of study in the desire to pursue a master's degree, ranging from 46.6% to 98.8% of students. Unfortunately, the study's results do not indicate in which fields these extreme values are reached.

However, to my knowledge, this study is the first to operationalize the academic self-concept of students and examine its effect on master's transition intentions. A higher academic self-concept is positively correlated with the intention to pursue a master's degree, indicating that students' confidence in their academic abilities plays an important role. Additionally, both

academic performance and previous study achievements, positively influence the ambition. Overall satisfaction with the study program also impacts transition intentions, suggesting that improving study conditions can encourage students to continue their academic careers.

[Lörz et al. \(2019\)](#) investigate in their study the determinants - performance, costs, returns, socio-demographics and educational biography - that play a role in the transition to a master's programme. The authors come to the following conclusions: Performance characteristics and perceptions of costs and returns significantly impact the decision. Students from less privileged backgrounds, women, and students with a migration background have a lower probability of transitioning. Students who have obtained their bachelor's degree at a university are significantly more likely to continue their studies than graduates from universities of applied sciences. 62% of university students aim for a master's degree before starting their bachelor's studies, whereas only 22% of students from universities of applied sciences do. The transition likelihood varies significantly depending on the field of study. Students in economics, engineering natural sciences as well as prospective teachers, are more likely to pursue a master's degree compared to students in the social sciences.

[Reimer, Schwabe \(2023\)](#) found that the implementation of the two-cycle structure due to the Bologna Process led to a substantial increase in higher education enrolment. This expansion resulted in a more diverse student population, including many from less privileged social backgrounds. The transition to master's programs in Germany remains highly socially selective, with students from academically qualified families having a higher probability of pursuing a master's degree. Over time, social inequality in the transition to master's programs has increased. These inequalities are reflected in the varying academic abilities and educational motivations of the students. While the 2005 cohort showed no significant inequality, established patterns of inequality re-emerged from 2009 onwards. Overall, the study shows that despite the expansion of access to higher education, social inequalities in the transition to master's programs persist and may even intensify.

[Stefani, Hinz, and Strauß \(2023\)](#) examine the overall attractiveness of master's programs. Bachelor students were asked to evaluate hypothetical master's programs. They found that less stringent grade requirements increase the intention of pursuing a master's degree. Programs with a practical, empirical focus are more attractive than purely theoretical ones and programs offering many choices and a wide thematic range are preferred over highly specialized ones. Additionally, a good student-to-teacher ratio is positively perceived and increases attractiveness. Programs at highly ranked universities are more attractive. High tuition fees have the strongest negative impact and programs taught in English are less attractive. Students from academic families are more likely to pursue a master's degree, while those from non-academic families have greater financial concerns. Finally, the authors found

that here are both, similar and different preferences between university students and those at universities of applied sciences.

[Quast, Mentges & Buchholz \(2023\)](#) do not directly address the transition to further studies but instead focus on why students from less privileged backgrounds are still less likely to pursue higher education compared to their privileged peers. Their analysis includes paths to university eligibility, final school grades, and perceptions of the probability of success, expected returns, and costs of higher education versus vocational training. They also consider the social environment's attitude towards higher education, including parental wishes and friends' educational intentions. The authors conclude that differences in the willingness to study can be fully explained by these factors.

Additionally, it should be mentioned that there are many other research contributions that are not presented in detail here. For example, [Fabian \(2021\)](#) investigates various factors, including social background and choice of study, that influence transition decisions. He draws the same conclusions as the authors previously discussed: Most students aim to pursue a master's degree, and sociodemographic characteristics, as well as educational decisions made prior to university, influence the probability of transitioning. [Kracke, Schwabe, Buchholz \(2024\)](#) found that only 25 out of 100 children from non-academic families attend university. When parents have a university degree, this number rises to 78 out of 100. Children whose parents lack vocational training are especially disadvantaged, with only 8 out of 100 pursuing a degree. The main reasons for decision-making are not performance differences, but rather the diverse perception of costs, benefits, and chances of success of a further university education.

Finally, the following contributions raise interesting questions regarding the concerns of students in Germany, but they focus on different thematic areas that are not directly covered in the present context: [Meyer, Strauß, Hinz \(2022\)](#) examine discrimination experiences in higher education. [Steinkühler et al. \(2023\)](#) focus about students with health impairments, and [Zimmer, Lörz, Marczuk \(2021\)](#) address the challenges faced by students with migration backgrounds during the COVID-19 pandemic. Finally, it should be highlighted that [Kroher et al. \(2023\)](#) have compiled a comprehensive report on the 2021 German Student Survey, which extensively covers student diversity, study formats and study paths, as well as study financing and the economic situation, housing situation, and social infrastructure of students.

In summary, there are many engaging projects within higher education research focusing on the two-tier degree system. These topics actively address existing problems and offer valuable starting points for improvements.

3 Theoretical Framework

This study is based on the *Motivational Beliefs, Values, and Goals* Theory by Eccles and Wigfield (2002) and the theoretical perspectives on *Motivation in Education* outlined by Wigfield, Cambria & Eccles (2012). These theories provide a comprehensive framework for understanding the psychosocial factors influencing students' decisions regarding higher education.

The *Motivational Beliefs, Values, and Goals* framework emphasizes the role of individual beliefs and values in shaping goal-directed behaviour, particularly in education. The model identifies two main components influencing achievement motivation: the subjective value assigned to a specific action and the expectation that this action will lead to desired outcomes (Stiensmeier-Pelster & Ottenpohl, 2018, p. 571). Applied to the decision of continuing their academic education, the subjective value reflects how much students value the potential benefits of the master degree. Self-concept represents their confidence in completing academic tasks successfully and expectancies denote their evaluation of success probabilities, considering both, task difficulty and self-concept.

High self-concept and self-efficacy are central to these considerations (ibid., p. 573). Self-concept entails individuals' perceptions of their abilities, shaped by personal experiences and external feedback. Self-efficacy refers to the belief in one's ability to overcome challenges through personal effort. Together, these factors determine how students assess their ability to meet academic demands and achieve their goals.

Intrinsic values, like the interest in a subject, or extrinsic values, like career prospects, also influence students' decisions. Positive values associated with higher education can increase motivation, whereas negative experiences or low self-assessments may deter students from continuing their studies. Students' expectations of their abilities play a crucial role. According to the expectancy-value theory, students who believe effort leads to recognition and success are more likely to persist in their studies and pursue advanced degrees. Conversely, low confidence in personal abilities may reduce motivation and the perceived value of further education.

In summary, the expectancy-value model highlights how beliefs about abilities and the value of education shape decisions about continuing academic studies. Based on these considerations, the following hypotheses are derived:

H1: A positive self-assessment of one's performance increases the likelihood of deciding to pursue a master's degree.

H2: A positive academic self-concept increases the likelihood of deciding to pursue a master's degree.

Wigfield, Cambria, and Eccles (2012) further emphasize the critical role of teacher-student and peer relationships in shaping students' motivation. Emotional support from teachers fosters positive perceptions of school competence and goal clarity, which are crucial for academic motivation and success. Similarly, peer support can facilitate transitions, while a lack of social competence or experiences of bullying can negatively impact motivation.

At the university level, these relationships translate into perceived support, encompass emotional support, like empathy and encouragement from teachers, faculty members and peers, which reduces stress and boosts confidence. Informational support like mentorship or advising, which helps students navigate academic challenges and make informed decisions. Instrumental support like access to resources and facilities, ensures that students have the tools to succeed. Thus, support from the university is essential for fostering motivation and enabling students to make decisions about advanced education. The following hypothesis is proposed:

H3: A positive perception of support at the university increases the likelihood of pursuing a master's degree.

This study will test these hypotheses using data from the 2021 German Student Survey. While other factors, such as socio-economic background, also influence educational decisions, this investigation focuses on psychosocial factors.

4 Data and Methods

This chapter first provides information on the survey, the data set used, and the sample generated from it for the analysis. The operationalization of the outcome and the independent variables is described in detail, both for the predictors and the confounders, identified through theoretical considerations.

This is followed by a section on the methods employed, where the test strategy and the development of the analytical procedure are also discussed in detail. The last section describes the final estimation procedure used to determine the results.

4.1 Survey Data and Sample Construction

In the summer semester of 2021, *the German student survey* was conducted for the first time in its new format, which consolidates previously separate surveys: the social survey

(*Sozialerhebung*), the student survey (*Studierendensurvey*), and a study regarding studying with health impairments (*best – Studieren mit gesundheitlicher Beeinträchtigung*) (Beuße et al., 2022). The new designed German Student Survey is a central component of educational monitoring in Germany and is intended to be conducted regularly every four years, with the next survey scheduled for the upcoming summer semester of 2025². Over time, this will create a solid database that will allow the observation of the development of higher education and the student population in Germany (fdz.DZHW 2, 2024, p. 3).

The target group of the study contained all students enrolled at German universities in the summer of 2021, apart from students at universities of applied administrative sciences (ibid. p. 9). All 396 German universities were invited to participate on this online- survey, of which 250 took part. These universities represent 84% of the total student population in Germany, which corresponds to approximately 2.3 million enrolled students (ibid. p. 9). From these, a random sample was generated, and invitations were sent to nearly 1.4 million students. This sample represents 60.9% of the total population. The adjusted response rate was 13.4%, resulting in a final sample size of 187,935 cases (ibid. p. 10).

The questionnaire covers a wide range of topics related to the whole study situation, which are visually represented in the scheme on the next page. It is important to note that not all respondents had to answer all question modules. Nonetheless, the questionnaire was still quite extensive. The allocation of the individual modules was randomized using a split design. More detailed information on this can be found in chapter 2.1 of the methods report (fdz.DZHW 2, 2024). The aim of this procedure was to "*avoid self-selection of respondents into different subject areas*" (ibid. p. 6). However, due to this design and the automated filtering technique used during implementation, a significant number of missing values were generated, which impaired the quality of the final dataset. A relatively high rate of interview dropouts was also noticeable, possibly because of the large number of questions that had to be answered.

The final dataset contains 187.935 observations and 1656 variables. It is available in two versions, as *Scientific Use File* (SUF) and as *Campus Use File* (CUF)³, which differ in the degree of anonymization and the associated usage restrictions. For the present study, the CUF⁴ was used because its higher degree of anonymization did not impose any limitation on the planned study.

² <https://www.die-studierendenbefragung.de/die-studierendenbefragung>

³ <https://fdz.dzhw.eu/de/datennutzung>

⁴ DOI: <https://doi.org/10.21249/DZHW:sid2021:1.0.1>

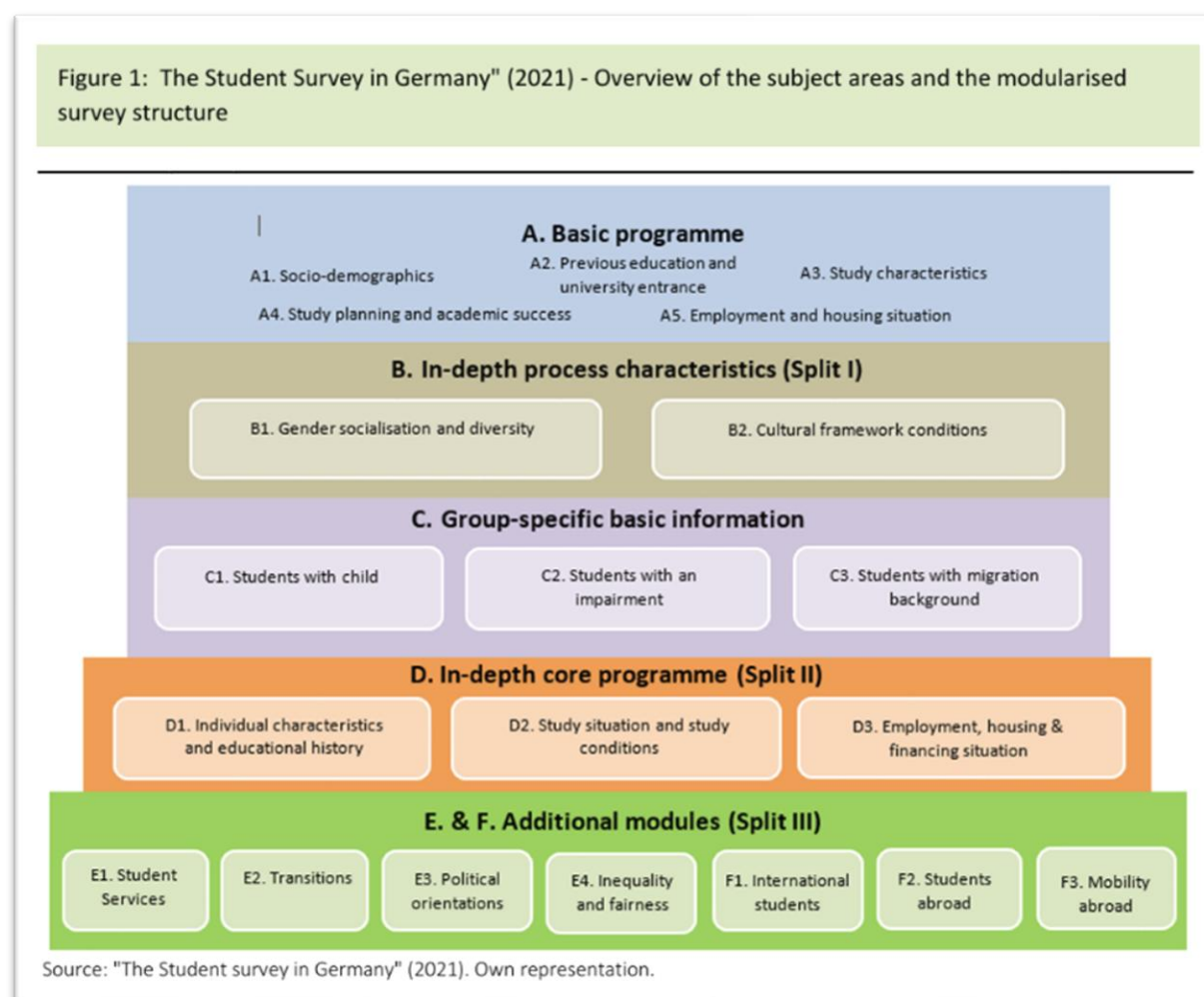


Fig. 1: Subject Areas and Survey structure, Source: fdz.DZHW 2 (2024): Data and Methods Report, p. 6

For the analysis of the influence of psychosocial factors on the intention to pursue a master's degree, all 187,935 cases were initially selected across 22 of the 1656 variables, which will be described in detail in the operationalization. This sample contains nearly 90,000 missing values, primarily due to the implemented filtering of the modular survey design (see table, Appendix A 1). Next, the sample was restricted to students who were enrolled in a Bachelor's program at the time of the survey and who responded to the query about their intention for or against a master's degree. This left 97,974 observations. To avoid bias in the results, all cases with missing values were removed, resulting in a sample size of 25,398 observations. A final reduction was made when creating the dichotomous outcome. Only observations that indicated a clear intention for or against a Master's degree were considered. Thus, the final sample comprises 20,891 cases, which corresponds to 21.32% of the participating Bachelor's students⁵.

⁵ For details on the sample construction, see Appendix B, 1 and 2.1.

4.2 Operationalization

In this section, the 22 selected variables will be explained in terms of how they will be used to measure the impact of psychosocial factors on the intention to pursue a master's degree.

4.2.1 Dependent Variable *Intention*:

As previously mentioned in the sample construction, the target variable is the intention declaration for or against pursuing a Master's degree. The central question in the survey was "*How likely is it that you will pursue a master's degree?*" and it could be answered on a 5-point Likert scale from 1 = *very unlikely* to 5 = *very likely* (Variable *mastplan_p*). To obtain a dichotomous outcome, all responses in categories 1 and 2 were grouped as rejection (0 = *no master intended*) and those in categories 4 and 5 as acceptance (1 = *master intended*). The 4507 responses in category 3 were not utilized as they do not represent a clear intention. This corresponds to 17.75% of the surveyed Bachelor's students, not included in this construct.

4.2.2 Predictor *selfAssessment*

The students were asked several times in the survey to assess their current performance in their ongoing Bachelor's program. All questions could be rated on a 5-point Likert scale from 1 = *very low* to 5 = *very high*. Six of these questions were selected to operationalize the predictor:

Variable Name	Label
sperleisrel	Rate your academic performance vs. peers
studerfolg	How confident are you in completing your studies?
masterfolg_p	How confident are you in completing a master's degree?
promoerfolg	How confident are you in completing a doctorate?
sask1	How would you rate your talent for studying?
sask4	My study-related skills are ...

Table 2: Variables used for construction of *selfAssessment*

The *selfAssessment* index was created from these variables and tested for internal consistency using Cronbach's Alpha. An alpha value of 0.82 resulted, indicating a high level of consistency in measuring the construct (For the calculation, see Appendix B, 2.2).

4.2.3 Predictor *selfConcept*

The predictor *selfConcept* does not directly refer to the current Bachelor's program but implies the general personal assessment of the students' academic self-concept. For the operationalization, the following questions were selected, which could also be rated on 5-point Likert scales from 1 = *not at all* to 3 = *average* to 5 = *totally* and from 1 = *very hard* to 5 = *very easy for me*:

Variable Name	Label
pswskill	In difficult situations, I can rely upon my abilities.
pswkraft	I can easily handle most problems on my own.
pswaufig	I am generally good at tackling even demanding and complex challenges.
sask2	Learning new things is...
sask5	Meeting my academic responsibilities is...

Table 3: Variables used for construction of *selfConcept*

The validation of the variable index using Cronbach's Alpha resulted in a value of 0.8, indicating a high level of internal consistency for the construct (Appendix B, 2.3).

4.2.4 Predictor *support*

This predictor indicates the perception of support at university and refers to the assistance from both, faculty members as teachers and fellow students as peers. These variables collectively assess the perceived supportive environment and interpersonal relationships within the academic community. The responses are measured on a 5-point Likert scale, ranging from "1 = *Not at all*" to "5 = *Corresponds exactly*".

Variable Name	Label
sscokli1	Teachers address students' difficulties.
sscokli3	Teachers are co-operative and open minded.
sscokli5	Teachers take time to address the needs of students.
sscokli6	Students demonstrate solidarity with each other.

Table 4: Variables used for construction of *support*

Two of six questions were removed from the index to improve its quality ("*Students generally support each other.*" and "*It is common for students to work together during their studies.*"). The calculation of Cronbach's Alpha resulted in a value of 0.92, indicating an excellent level of internal consistency for the construct being measured (Appendix B, 2.4)

4.2.5 Confounding Variables

Based on theoretical considerations, the variables age, gender, parents' education, and subject of study were selected as potential confounding factors.

Age was included as a confounder because it is theoretically linked to both, the intention to pursue further education and to various factors, as life stage and maturity can influence academic decisions and attitudes. The information on the age of the students in the dataset is available in categorized form (from "*19 years and younger*" up to "*31 years and older*") rather than as individual data points (Variable *demoage_g2*). For the subsequent regressions, a dichotomous dummy variable *age* was created from this. The division was made between 22 and 23 years to achieve an approximately even distribution.

Gender was included due to its well-documented impact on educational aspirations and experiences, thus affecting both, the intention to pursue further degrees and the relevant predictors. The variables *demosex_p_g* (male / female) and *akad_sid* (academic / non-academic) are already available as dichotomous dummy variables in the dataset and were adopted with new names *gender* and *parentsEducation*. Parents' education was selected as it significantly correlates with students' educational intentions and motivations, providing a contextual background that can affect both, outcome intentions and the predictors.

The field of study was chosen because it directly relates to students' academic environments and experiences, which can shape their future educational intentions and interact with other predictors. The subject of study is categorized into nine different nominal subject groups (*FG1_STB_p*). These were consolidated into a dummy variable distinguishing between technical and non-technical programs.

While other confounders for this construct, such as socioeconomic status, school education, or prior academic performance, certainly exist, I have limited the focus to age, parents' education, gender, and study. Their relevance to both, individual intentions and perceptions, is clear and theoretically substantiated. The confounders were selected based on their theoretical and empirical importance in the decision-making process for pursuing a master's degree. Age, in particular, has been largely underexplored in this context, despite its potential impact on decision-making due to differences in life stages or priorities among students. Furthermore,

the choice of these confounders was influenced by the availability of detailed and high-quality data in the German Student Survey 2021, which facilitates a robust examination of variables such as age categories and parents' education. Lastly, including these confounders helps minimize the risk of bias in the analysis, ensuring that the observed effects of the predictors are not unduly influenced by broader demographic or social factors likely to shape master's degree intentions.

4.3 Methods

After selecting the variables very extensive tests were conducted. *Chi² tests* were used to examine the existence and strength of relationships between the outcome variable and the predictors, between outcome and confounders, and between predictors and confounders. *T-tests* were performed to compare the means between two groups to determine if there is a statistically significant difference. Assessments of *Type I and Type II errors*, along with *power tests*, were conducted in one step to ensure the tests' accuracy by evaluating the chances of false positives and false negatives and determining the ability of the tests to detect an effect if there is one.

Furthermore, the previous results suggest potential issues with heteroscedasticity and additionally, the potential presence of multicollinearity, which can complicate the interpretation of their individual effects in a model. Thus, the *Variance Inflation Factor (VIF) tests* were used to check for multicollinearity and the *Breusch-Pagan test* was applied to detect heteroscedasticity, ensuring that the variance of the errors was consistent across observations. Finally, a *visualization of the direct predictor effects* was created to clearly illustrate the relationships between the predictors and the outcome variable (see Appendix B, 4.6.1). Multicollinearity was ruled out, but heteroscedasticity was present, and the visualization showed non-linear effects. For this reason, several modeling options were subsequently examined to determine how and in what combination appropriate measures need to be taken in the regression.

Evaluating all options and their combinations, the regression using a *Generalized Additive Model (GAM)* in conjunction with *Splines* for the predictor *selfAssessment* and the use of *Robust Standard Errors* to address heteroscedasticity showed the best modeling values⁶. As Generalized Additive Models extend Generalized Linear Models (GLM) by incorporating relationships through smoothing functions like splines, the regression was conducted

⁶ For detailed information about all options for modeling and their different results, see Appendix B, 5.

accordingly to model the non-linear effects more accurately and was performed according to the following formula:

$$\text{Logit}(P(\text{intention} = 1)) = \beta_0 + s(\text{selfAssessment}) + \beta_1 \cdot \text{selfConcept} + \beta_2 \cdot \text{support} + \gamma_1 \cdot \text{age} + \gamma_2 \cdot \text{parentsEducation} + \gamma_3 \cdot \text{study}$$

Fig. 2: Formula for Generalized Additive Model, own computations

After the stepwise construction of the regression model from the null model, adding the predictors, and including the confounders, a robustness check was conducted by using a GAM-probit model and a factor model with categorized age factors for comparison. All three modeling approaches showed similar, thus robust, results, with the factor model appearing to be the most informative (Appendix B, 6.6).

The results of the regression and its visualization are depicted in Appendix A 3 (p. 37). A comparison of the regression table and the corresponding visualization reveals a striking discrepancy: while the visual effects of the three predictors continue to show a positive increasing trend, the corresponding coefficients for *self-concept* and *support* are indicated with negative signs. The so-called *Simpson's Paradox* might occur when an observed relationship between two variables in the overall sample shows a different direction or strength within subgroups. This happens when a confounder is associated with both, the independent and dependent variables, and there is a highly unequal distribution of cases (Lerman, 2018). In the present construct, the outcome itself and the confounder *age* are highly unequally distributed.

The effects of the predictors varied significantly across different age groups, which led to the observed discrepancies. To control for this effect, age was no longer used as a dummy but as a categorical variable, and the regression was conducted within the individual age groups. This allowed the modeling of the relationship between the psychosocial predictors and the intention to pursue a master's degree, considering the age groups. This approach has the added advantage of resolving the non-linear effect of *selfAssessment*. In the subsequent set of regressions within the age groups, Generalized Linear Models could be used, meaning splines for *selfAssessment* were no longer necessary. However, robust standard errors were still needed to address heteroscedasticity. The regressions within the age groups were conducted according to the following formula:

$$\text{intention} \sim \text{selfAssessment} + \text{selfConcept} + \text{support} + \text{parentsEducation} + \text{study}$$

Fig. 3: Formula for Generalized Linear Model, own computations

Finally, meaningful results for the individual age groups could be achieved, which were presented using *Average Marginal Effects* (AMEs). AMEs summarize the effect of a predictor variable on the outcome, averaging over the observations within each specified subgroup of *age*. They provide a straightforward interpretation of how changes in the predictor variable influence the predicted probability or expected value of the outcome within these subgroups. This makes them particularly useful for understanding the impact of each predictor in a differentiated manner. Moreover, AMEs are often more intuitive to interpret compared to odds ratios, as they directly convey the magnitude of change in the outcome variable.

5 Results

This chapter presents the results of the analysis examining the influence of psychosocial factors on the intention to pursue a master's degree. The analysis is based on data from the 2021 German Student Survey by the DZHW and explores how various factors, including self-assessment, self-concept, and support, as well as confounding variables such as parental education and field of study, shape students' educational intentions. The results are discussed in three main sections: first, a summary of the descriptive findings; second, the regression analysis and average marginal effects (AMEs) for this construct, and third, the examination of within-group differences to assess how these influences vary across different subgroups, particularly by age and intention status. The following sections will provide detailed insights into these patterns and their implications.

5.1 Descriptive Results

The dependent variable *intention* summarizes the declarations of intent from bachelor students regarding their future pursuit of a master's degree. As mentioned in the methodology section, these intentions are highly unevenly distributed: 28.91% of bachelor students do not intend to continue their academic education after completing their degree, whereas a significantly larger proportion of 71.09% plan to continue their studies with a master's programme (Appendix A 2). It is important to note that these figures represent intent rather than actual continuation, leaving it uncertain whether all students will follow through with their plans. Nevertheless, a clear majority of students aim to pursue further education, indicating a strong inclination towards obtaining a master's degree among the surveyed cohort. This distribution emphasizes the value placed on continued academic development by most students while also highlighting the

minority who intend to transition directly into the workforce or other non-academic pathways. Understanding the factors influencing these decisions is critical, as the stark disparity between the two groups carries implications for educational planning and support services at the university level.

The predictor *selfAssessment* captures various dimensions of students' self-perceived abilities and confidence in academic contexts. The index is composed of six variables, each reflecting a distinct aspect of self-assessment, ranging from confidence in completing specific academic milestones (bachelor, master, doctorate) to comparisons of one's own success with peers. Most students rate themselves highly in terms of *Degree Completion Capability* (87% above average) and *Self-Assessed Own Talent* (68% above average). The variable *Own Success compared to peers* is predominantly rated as average, which could be due to the lack of a clear comparison basis, making it difficult for many students to accurately assess their relative standing. Self-confidence drops significantly when assessing *Doctorate Completion Capability*, with only 22% reporting above average confidence and 49% rating themselves below average, highlighting greater uncertainty associated with higher academic milestones compared to the strong confidence expressed in completing a bachelor's or master's degree.

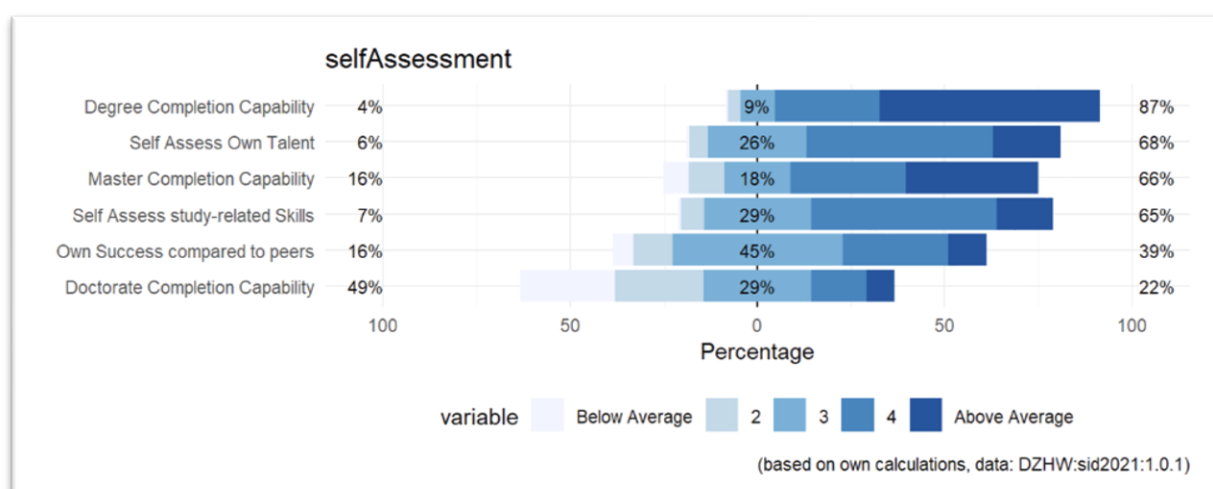


Fig. 4: Descriptive Results selfAssessment

These distributions highlight the variability in self-perceived academic abilities among students. The aggregated *selfAssessment* index aims to capture these diverse facets, providing a comprehensive measure of self-confidence that may influence students' intentions to pursue further education.

The predictor *selfConcept* reflects students' confidence in their personal abilities to manage academic and personal challenges in general. It is composed of five variables measuring distinct aspects of self-concept. The majority of students rate themselves highly in terms of their *Ability to Handle Problems* (75% in categories 4 and 5) and their confidence in *Relying on Abilities* (71%). However, fewer students express strong confidence in their *Ability to Complete Academic Tasks*, with only 48% rating themselves in the highest two categories, and 39% providing a neutral or average assessment (category 3). Interestingly, the variables *Ability to Tackle Challenges* and *Self-Assess Learning New Things* are similarly distributed, with approximately two-thirds of students (65% and 64%, respectively) reporting positive confidence levels (categories 4 and 5).

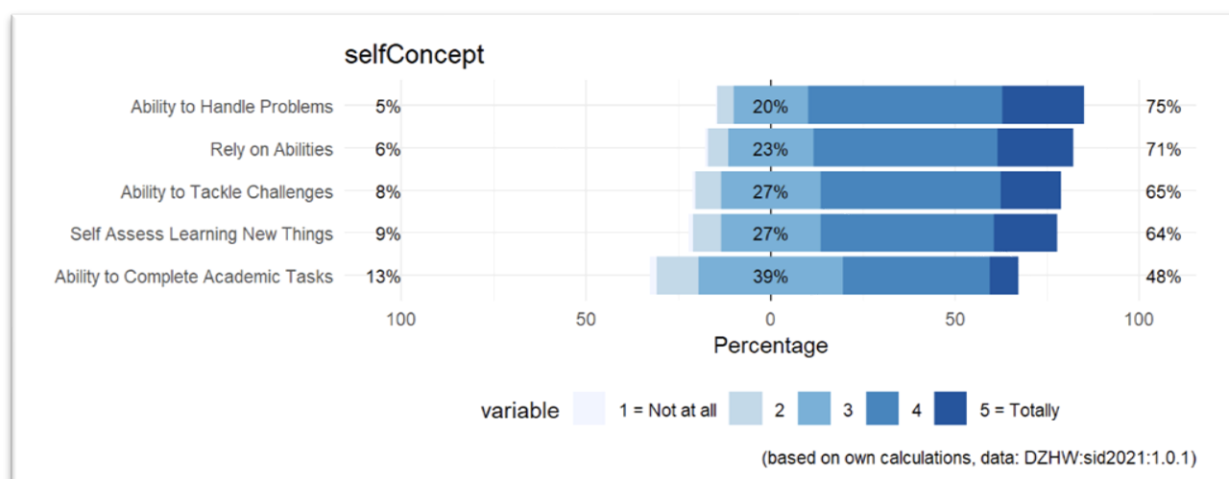


Fig. 5: Descriptive Results *selfConcept*

These results indicate a generally high level of self-assurance among students, particularly in areas involving problem-solving and relying on personal strengths, while more specific academic tasks appear to evoke greater uncertainty. This variability across dimensions suggests that students differentiate between general and task-specific self-confidence. Such distinctions are important as they highlight areas where students may require additional support or encouragement, especially in the context of academic tasks. Understanding these nuances can help educators develop targeted interventions to bolster students' confidence across various domains.

Building on the importance of fostering students' confidence, the role of external influences such as support from the academic environment becomes evident. While self-concept reflects internal perceptions of ability, the predictor *Perceived Support* captures students' evaluation of

the external encouragement and assistance provided by teachers, faculty members and peers, which can play a vital role in shaping students' academic experiences. The results show that 64% of students perceive their teachers as cooperative (categories 4 and 5), indicating a relatively good level of collaboration in academic settings.

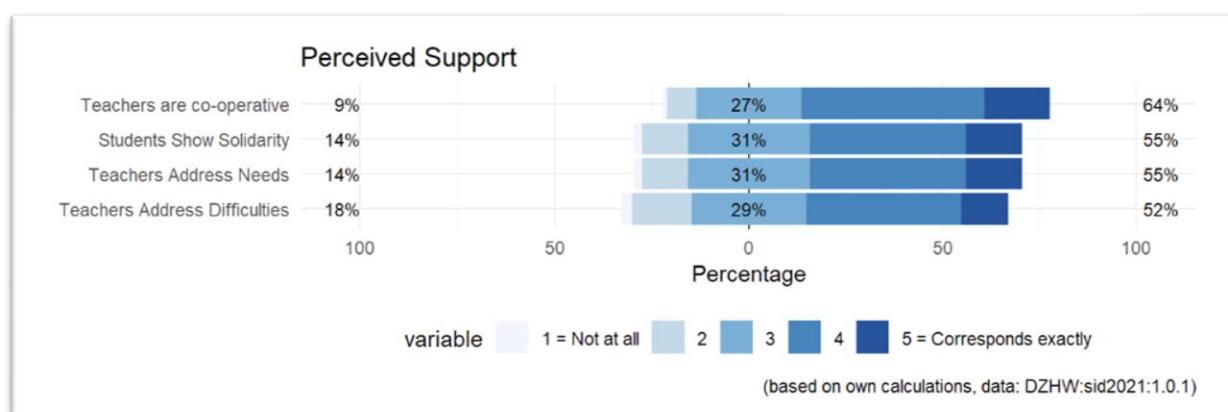


Fig. 6: Descriptive Results perceived support

However, aspects such as *Students Showing Solidarity* and *Teachers Addressing Needs* are rated slightly lower, with 55% of students expressing positive assessments in these areas. The lowest confidence is seen in *Teachers Addressing Difficulties*, where only 52% of students report high levels of agreement (categories 4 and 5).

Interestingly, these results suggest that while general cooperation with faculty is viewed positively, there is substantial room for improvement in more specific support dimensions, particularly in addressing students' needs and difficulties. This may indicate a gap between general perceptions of supportiveness and the extent to which students feel their individual challenges are adequately addressed. Such insights are critical for understanding how perceived support influences academic confidence and outcomes, as well as identifying areas where institutions can strengthen their support systems.

After examining outcome and predictors, it is now essential to take a closer look at the confounders, which play a crucial role in understanding the factors influencing students' intentions to pursue a master's degree. These variables help to control for external influences and provide a more nuanced analysis of the relationships under investigation (Appendix A 2).

Parents' Education is a dichotomous confounder that distinguishes between students with academic background, at least one parent with an academic degree, and those whose parents do not. The data reveals that 53.75% of students fall into the academic category, while 46.25%

belong to the non-academic group. At the first glance, this distribution suggests a slight majority of students come from families with academic experience, potentially providing them with advantages in navigating higher education due to familiarity with academic environments. In contrast, students from non-academic families may face unique challenges, such as lacking access to informal knowledge about academic structures or fewer role models in higher education. However, this seemingly balanced distribution may be misleading, as it masks underlying social inequalities. This discrepancy could be partly explained by the heterogeneous age structure in the sample, as older students, who may have obtained university entrance qualifications through vocational pathways, are more likely to belong to the non-academic category.

Given the potential influence of age on educational decisions and opportunities, the next confounder, *age*, warrants attention. Age can significantly shape both, educational aspirations and the likelihood of pursuing further education, thus offering another important layer of context for understanding students' intentions and experiences.

The age distribution in the sample shows significant inequality, with the largest proportion of students being aged 20 to 22 years. Approximately 46.76% of the respondents belong to this age group, making up nearly half of the entire sample. The 23 to 25-year-olds form the second-largest age category at 25.02%, while the age groups of 19 years and younger (8.81%) and 26 to 30 years (11.69%) are notably smaller. Only 7.72% of the students are 31 years or older, indicating a relatively low number of older students.

This unequal age distribution, particularly the high proportion of students aged 20 to 22 years, led to biases in the analysis. To mitigate these biases, separate regression analyses were conducted within the age categories. Without this stratification, it would have been impossible to examine the effects of the predictors on the intention to pursue a master's degree without the distortions caused by the age structure.

5.2 Regression Results, Average Marginal Effects (AMEs)

In this section, the key results of the regression analyses are presented. The aim of these analyses was to examine the effects of the predictors *selfAssessment*, *selfConcept*, and *support*, as well as the confounders *parentsEducation* and *study program*, on the *intention* to pursue a master's degree. The unequal age distribution in the sample was first addressed by conducting separate regression analyses for the different age groups.

The main findings show that *selfAssessment* has a positive influence on the intention to pursue a master's degree across all age groups, while *selfConcept* exerts a negative effect on

the outcome in most age categories. *Support* has a significant influence only in the age groups up to 25 years, showing a negative effect in younger age groups and no significant effect in older age groups. Moreover, *parentsEducation* plays an important role in all age groups, consistently showing positive effects on the decision to pursue a master's degree. The subject of *Study*, on the other hand, only has a significant influence on the master's intention in the 20-22 age group.

The following analysis highlights the Average Marginal Effects (AMEs) of the predictors on the decision to pursue a master's degree, separated by age groups. In Appendix A 5 all AMEs are presented in tabular form (calculations in Appendix B, 10.5).

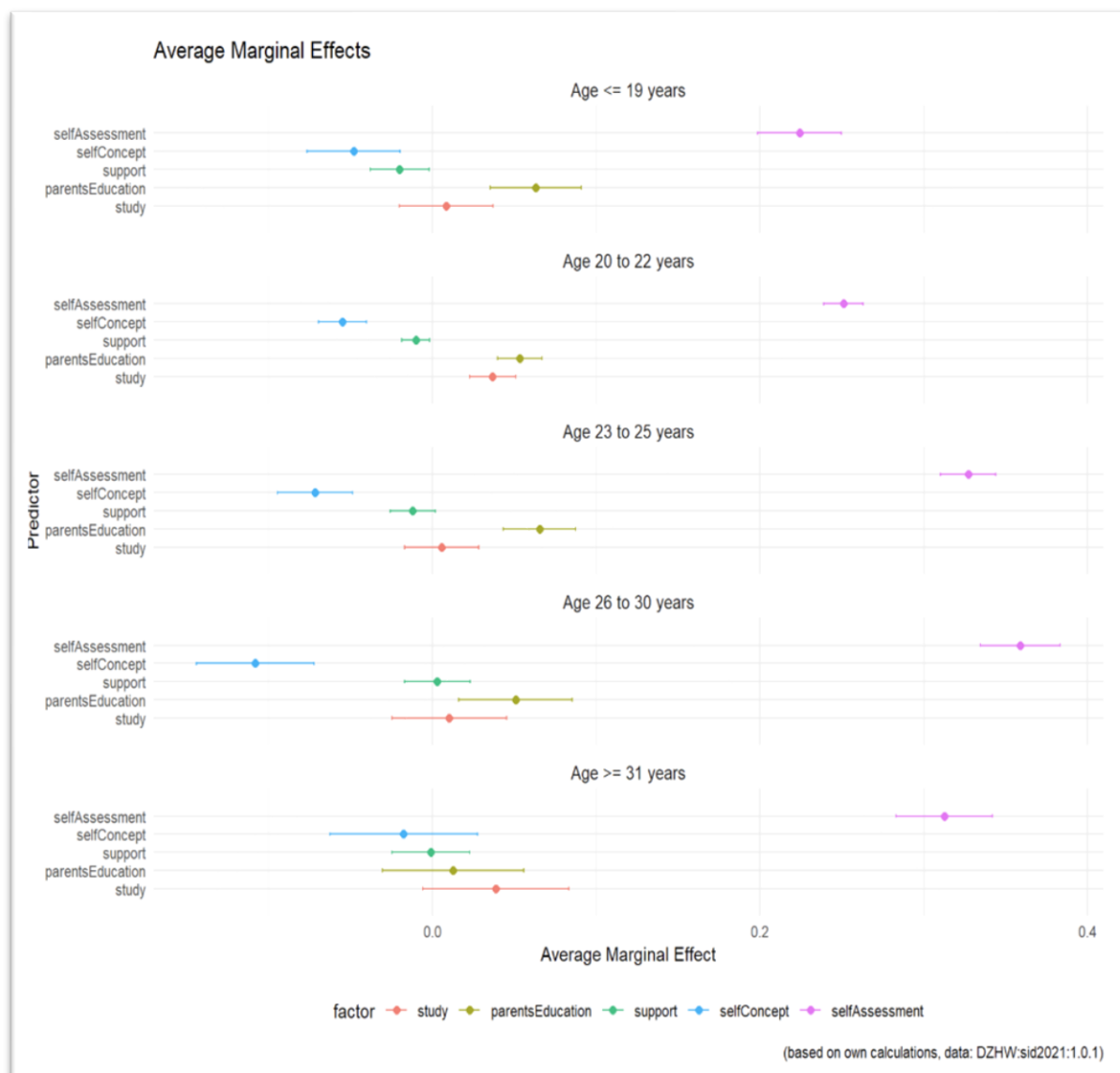


Fig. 7: Regression Results: Average Marginal Effects

In the age group of the youngest students, *selfAssessment* shows a strong positive effect (AME = 0.22, $p < 0.001$), indicating that a higher self-assessment is associated with a higher likelihood of deciding to pursue a master's degree. *selfConcept* has a negative effect (AME = -0.05, $p < 0.001$), suggesting an opposite influence: a higher self-concept appears to be associated with a lower likelihood of pursuing a master's degree. *support* is also negative and significant (AME = -0.02, $p = 0.028$), implying that less perceived support is associated with a lower likelihood of having the intention to pursue a master's degree. *parentsEducation* has a positive influence (AME = 0.06, $p < 0.001$), with students from academic families showing a higher likelihood of intending to pursue a master's degree. The *study* effect is not significant in this group ($p = 0.56$), indicating that the field of study does not have a direct influence on the decision to pursue a master's degree.

For the 20 to 22-year-olds, the results differ. *selfAssessment* has a very strong positive effect (AME = 0.25, $p < 0.001$), highlighting the strong impact of self-confidence on the intention to pursue a master's degree in this age group. *selfConcept* remains negative and significant (AME = -0.05, $p < 0.001$). *support* is also negative (AME = -0.01, $p = 0.021$), indicating the influence of perceived support. The effect of *parentsEducation* remains positive and significant (AME = 0.05, $p < 0.001$), showing that students from academic families are more likely to consider pursuing a master's degree. *study* is significantly positive (AME = 0.04, $p = 0.000$), indicating that students in technical fields tend to have a higher intention to pursue a master's degree.

selfAssessment remains a strong positive predictor in this age group of 23-25-year-olds (AME = 0.33, $p < 0.001$). *selfConcept* continues to show a negative effect (AME = -0.07, $p < 0.001$), indicating consistency across all age groups. *support* is only weakly negative in this group (AME = -0.01, $p = 0.09$) and therefore not clearly significant. *parentsEducation* further demonstrates a significant positive effect on the intention (AME = 0.07, $p < 0.001$). The strength of this effect highlights the continued influence of parental education as a key factor shaping educational aspirations. The *study* effect is not significant in this age group ($p = 0.62$), indicating that the field of study does not have a significant influence on the decision to pursue a master's degree.

Age group 26 to 30 years: *selfAssessment* remains the strongest positive predictor for the intention to pursue a master's degree (AME = 0.36, $p < 0.001$), indicating that a higher self-assessment is associated with a higher likelihood of deciding to pursue further education. *selfConcept* still shows a significantly negative effect (AME = -0.11, $p < 0.001$), suggesting that a higher self-concept is associated with a lower likelihood of having the intention to pursue a master's degree in this age group. The *support* effect is not significant ($p = 0.77$), indicating that perception of support does not have a significant influence on the intention to pursue a

master's degree in this age group. *parentsEducation* still has a positive effect ($AME = 0.05$, $p = 0.004$). The *study* effect is not significant in this group ($p = 0.57$), indicating that the field of study does not have a direct influence on the decision.

For the oldest students, 31 years and older, the following picture emerges: *selfAssessment* remains a strong positive predictor in this age group ($AME = 0.31$, $p < 0.001$). The *selfConcept* effect is not significant in this group ($AME = -0.02$, $p = 0.45$), suggesting that self-concept does not influence the outcome in this age group. The *support* effect also is not significant ($p = 0.94$). The very small AME value and the lack of statistical significance suggest that support is not a meaningful factor for older students in this context. *parentsEducation* has a small positive effect ($AME = 0.01$, $p = 0.56$), but this is not significant, indicating that parental education does not have any more a significant influence on the intention to pursue a master's degree for this age group. Finally, the effect of *study* is not significant ($AME = -0.0009$, $p = 0.94$).

5.3 Within-group Differences

Building on the interpretation of the Average Marginal Effects (AMEs) across different age groups, the last step is to explore the *within-group differences*. Within-group differences refer to the analysis of how certain factor - specifically confounders in this case - differ in their influence within the two outcome categories of the decision to pursue a master's degree (Intention = Yes) and not to pursue a master's degree (Intention = No). By examining these differences, deeper insights can be gained how the confounders affect students who have made different decisions regarding their educational trajectories. This approach allows for a more nuanced understanding of the role of these factors in shaping the intention to pursue further studies, independent of the direct impact of the predictors.

To explain the within-group differences in relation to *age* categories, we will first examine the distribution of age groups within the two categories of *intention*: those who do not intend to pursue a master's degree and those who do.

Value	Label	N	Raw %	Valid %	Cum. %
1	19 years and younger	280	4.64	4.64	4.64
2	20 - 22 years	1913	31.67	31.67	36.31
3	23 - 25 years	1736	28.74	28.74	65.05
4	26 - 30 years	1184	19.60	19.60	84.65
5	31 years and older	927	15.35	15.35	100.00

Value	Label	N	Raw %	Valid %	Cum. %
1	19 years and younger	1560	10.50	10.50	10.50
2	20 - 22 years	7855	52.89	52.89	63.40
3	23 - 25 years	3491	23.51	23.51	86.90
4	26 - 30 years	1259	8.48	8.48	95.38
5	31 years and older	686	4.62	4.62	100.00

Fig. 8: Within-Group Differences: Age Categories

These distributions highlight significant differences in age groups across the two intention categories. The younger students (particularly those in the 20–22-year range) are more likely to express a positive intention, while older age groups (especially those 31 years and older) are underrepresented in the "intention = Yes" category. These differences will be important to consider when analysing how the influence of the predictors may vary between these groups. For instance, the age distribution may affect how factors such as self-assessment, self-concept, or support influence the intention across different age categories.

In examining the distribution of *parentsEducation* within the groups of master- intention, notable differences emerge. For those with no intention to pursue a master's degree, a higher proportion of students come from non-academic backgrounds, with 58.48% of this group having non-academic parents, and 41.52% having academic parents.

Parents' Education			
Parents' Education within Intention = No			
Value	Label	N	%
0	non-academic	3532	58.48
1	academic	2508	41.52

Parents' Education			
Parents' Education within Intention = Yes			
Value	Label	N	%
0	non-academic	6131	41.28
1	academic	8720	58.72

Fig. 9: Within-Group Differences: Parents' Education

Conversely, in the group with the intention to continue the academic education, the distribution shifts, with a higher proportion of students coming from academic families. Here, 58.72% of students have academically educated parents, compared to 41.28% who come from non-academic backgrounds. These differences show that students with academic parents are more likely to intend to continue their studies. This finding confirms previous empirical research, which has consistently shown that parental education plays a significant role in shaping students' educational aspirations and decisions. Students from academic families are often more encouraged or have greater access to resources that support the pursuit of further education, including master's programs.

The distribution of the subject of *study* within the intention groups shows a slight difference in the representation of technical and non-technical fields. Among students who do not intend to pursue a master's degree, a larger proportion are from non-technical fields (60.53%) compared to technical fields (39.47%). In contrast, among students who intend to pursue a master's degree, the distribution is more balanced, with 57.52% from non-technical fields and 42.48% from technical fields.

Subject of Study			
Subject of Study within Intention = No			
Value	Label	N	%
0	non-technical	3656	60.53
1	technical	2384	39.47

Subject of Study			
Subject of Study within Intention = Yes			
Value	Label	N	%
0	non-technical	8542	57.52
1	technical	6309	42.48

Fig. 10: Within-Group Differences: Subject of Study

This shift suggests that technical fields may have a slightly higher representation among those intending to pursue a master's programme. However, the differences are not as pronounced as those found for parental education. This might indicate that while the subject of study plays a role in shaping students' intentions, it may be less decisive compared to other factors such as parental education or age.

5.4 Summary of Results

The key findings from this study highlight several important patterns regarding the psychosocial factors influencing the intention to pursue a master's degree. Firstly, a positive self-assessment of academic performance emerged as a consistently strong predictor across all age groups, with the most significant effect observed among students aged 23 to 25 years. This suggests that students with a more favourable view of their academic abilities are more likely to express an intention to continue. Conversely, a higher self-concept was associated with a reduced likelihood of intending to pursue further education, particularly among younger students, which runs counter to the hypothesized positive relationship. The perception of support at university also showed mixed results, with a negative effect for younger students (under 22 years), indicating that higher perceived support is linked to a lower likelihood of pursuing a master's degree in this group. This effect was not observed in older age groups. Both negative effects are counterintuitive findings, so further investigations are needed.

Additionally, parental education played a significant role, showing a positive effect on the intention to pursue across all age groups, with the strongest impact found in the youngest students. The subject of study only significantly influenced the decision in the 20 to 22-year-old group, further suggesting that field of study may have a varying influence depending on age. The within-group differences further revealed that the impact of these factors varies within intention groups, particularly regarding age and parental education. These findings suggest

that psychosocial factors, while influential across all students, may have different effects depending on a student's specific characteristics and intentions.

The results largely support Hypothesis H1, which suggested that a positive self-assessment of previous academic performance increases the likelihood of deciding to pursue a master's degree. Self-assessment was found to have a consistent positive effect on the intention to pursue a master's degree across all age groups. This confirms the positive relationship proposed in Hypothesis H1.

However, Hypothesis H2, which posited that a positive self-concept increases the likelihood of pursuing a master's degree, was not supported. Instead, the results indicated a negative relationship between self-concept and the intention in most age categories. This suggests that a higher self-concept is associated with a reduced likelihood of intending to pursue a master's degree, particularly among younger students, contradicting the hypothesis.

Similarly, Hypothesis H3, which stated that a positive perception of support at the university increases the likelihood of pursuing a master's degree, was also not confirmed. The analysis revealed that the perception of support had a significant negative effect on the intention to pursue a master's degree in younger age groups (under 22 years), and no significant effect was found in older age groups. This contradicts Hypothesis H3, which expected a positive association between perceived support and the intention to pursue further education.

In addition to the primary psychosocial factors, other variables such as parents' education and the subject of study were examined. Parents' education was found to have a positive effect on the outcome across all age groups, aligning with previous research that highlights the importance of parental academic background in shaping educational aspirations. In contrast, the field of study only showed a significant influence among students aged 20 to 22 years, indicating that the subject of study may play a more significant role for younger students.

6 Discussion and Conclusion

The findings of this study highlight the complexities involved in understanding the psychosocial factors influencing students' intention. One of the key methodological challenges was the necessity of differentiating the analysis by age groups. The decision was driven by the mixed empirical evidence present in the dataset, which indicated that psychosocial factors such as self-assessment, self-concept, and perceived support influenced students' educational intentions in varying ways depending on their age. By conducting separate analyses for each

age group, this study aimed to identify meaningful patterns that might have been obscured in a broader, undifferentiated analysis.

This approach allowed for a more nuanced understanding of how these factors interact with the intention to pursue a master's degree, revealing important age-related differences that may not have been apparent when considering the entire student population as a homogenous group. However, it also posed certain limitations, which will be discussed below.

The analysis of psychosocial factors influencing students' intention to continue their academic education has revealed several key patterns, with important implications for understanding decision-making in higher education.

First, self-assessment of academic performance was identified as a consistently strong predictor across all age groups, suggesting that students with a more favourable view of their academic abilities are more likely to intend to pursue a master's degree. This aligns with the hypothesis that a positive self-assessment increases the likelihood of further education.

In contrast, self-concept demonstrated a negative effect across age groups, contradicting the hypothesis that a higher self-concept promotes the intention to pursue a master's degree. Specifically, younger students were found to be less likely to express such an intention when they reported a higher self-concept, pointing to the complexity of this relationship. This counterintuitive finding may be due to younger students with a higher self-concept feeling more confident in exploring alternative educational or career paths outside of a master's program. This result differs from Kretschmann et al. (2017), which suggested that self-concept generally promotes further educational aspirations. This difference might be due to different operationalizations of self-concept.

The perception of support at the university was found to have a mixed effect. While higher perceived support was associated with a lower likelihood of pursuing a master's degree among students under 22 years old, it had no significant effect in older age groups. This suggests that support systems might influence younger students differently compared to their older counterparts, potentially due to differing expectations or experiences at the university. Younger students may rely more on immediate support systems and may feel less need to pursue advanced degrees if they feel adequately supported in their current environment. This finding adds to the nuanced understanding of university support highlighted by Stefani, Hinz, and Strauß (2023), who found that perceived support influences student preferences and decisions. However, the descriptive analysis also clearly showed that there is still significant room for improvement in terms of student support at the universities. Although generally rated positively, it was not particularly well-regarded. This result corresponds with the negative effect in terms of content, suggesting that the influence on the continuation of studies would be

greater and more positive, if the support were perceived to be of a higher quality. Such feedback is important for improving the quality of support and, consequently, the overall study experience.

Parental education emerged as a consistent positive factor, with students from academically educated families being more likely to express the intention to pursue a master's degree. This effect was strongest in the youngest age group, further emphasizing the role of family background in students' educational aspirations. This may be attributed to the value placed on higher education by families with an academic background, which strongly influences younger students' decisions. It is evident that the influence of the parental home is significantly stronger in very young adults compared to older ones. This finding aligns with the conclusions of Reimer & Schwabe (2023), Auspurg & Hinz (2011), Lörz et al. (2019), Kretschmann et al. (2017), and Quast, Mentges, & Buchholz (2023), who noted the enduring impact of social background on educational transitions.

Finally, the field of study was a significant factor only for students aged 20-22 years, indicating that subject choice may influence students' intentions in specific age brackets. This highlights the need to consider discipline-related factors when examining educational intentions, as their relevance may vary by age group. Younger students in technical or scientific fields may see a clearer pathway to advanced degrees compared to their peers in other disciplines. This finding aligns with the conclusions of Lörz et al. (2019) and Fabian (2021), with the restriction that in my study, significant variations based on the field of study were only observed for the 20–22-year age group.

In conclusion, this study underscores the importance of considering age-related differences when examining the factors influencing students' intentions to pursue a master's degree. By acknowledging and addressing these differences, educators and policymakers can better support students in making informed decisions about their educational futures. Further research is needed to explore the underlying reasons for these age-related variations and to develop targeted interventions that address the specific needs of different student groups. This study builds on existing research by providing a detailed analysis of how psychosocial factors, differentiated by age, influence the decision to pursue a master's degree, and offers new insights into the interplay of these factors.

Several limitations of this study should be acknowledged. Due to the modular structure and splitting of the questionnaire, not all respondents received the same question blocks. Additionally, a high number of interview interruptions were recorded. Consequently, the dataset contains a significant amount of missing data, which could lead to biases. It is recommended to optimize the survey design in future implementations to reduce the NA rate. Additionally, the

cross-sectional nature of the data limits the ability to infer causality. While the analyses provide a snapshot of the factors influencing students' intentions at a specific point in time, longitudinal studies would be necessary to track changes in intentions and outcomes over time. This limitation will be addressed in the future, as this study will be conducted regularly, allowing for a long-term observation of German higher education and the comprehensive conditions affecting students.

Furthermore, the study's reliance on self-reported data introduces the potential for response bias. Students may have over- or under-estimated their abilities and intentions due to social desirability or other biases. It is important to understand that this study only captured students' intentions, not the actual realization of these intentions. The next survey round in summer 2025 could provide valuable insights into how many bachelor students continued their academic education.

The operationalization of key variables may have varied interpretations among respondents, potentially affecting the consistency and reliability of the measures. Further, there are always other potential confounders that might also have an influence, as well as variables related to objective criteria like socio-economic factors.

The categorization of age groups was initially not planned but became necessary. This procedure may not fully capture the nuances of how age and maturity interact with the intention to pursue a master's degree. Future research might consider more granular age categorizations or relate them more closely to the corresponding life stages.

Finally, while this study focused on psychosocial factors, there are undoubtedly other factors not examined here that could influence students' intentions, such as economic considerations, labour market conditions, and personal life circumstances.

In future research, it will be crucial to place greater emphasis on psychosocial factors, not only on objective criteria that explore social inequalities. The age structure of students should also be examined in more detail, as the student population is becoming increasingly diverse and studies under varying conditions depending on their biographies. This diversity must be kept in mind to better understand the different educational pathways, decisions-making processes and experiences.

Additionally, a shift in perspective can help achieve more nuanced results. Multidimensional approaches, such as analyses in subcategories and within-group differences, can provide deeper insights into the factors influencing students' intentions. By examining these aspects, future studies can offer a more comprehensive understanding of the complexities involved in the decision-making processes of students regarding higher education.

By integrating these considerations into research designs, educators and policymakers will be better equipped to address the diverse needs and circumstances of the student population, ultimately contributing to more effective and equitable educational policies and practices.

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Appendix A

A 1 Missing Values Declaration

NA Declaration		
Value	Description	Frequency
-998	no response	2423
-996	interview aborted	23930
-989	missing due to filter	63606
-987	missing due to design (split questionnaire)	0
-969	unknown missing value	2
-967	anonymized	0
-966	undetermined	0
-929	data loss	0
-13	no response (refusal)	0
-12	don't know	0
-11	not applicable	0

Table 5: Missing Values Declaration

A 2 Descriptive Results

Intention to pursue a Master's degree					
Frequencies Master-Intention					
Value	Label	N	Raw %	Valid %	Cum. %
0	no Master intended	6040	28.91	28.91	28.91
1	Master intended	14851	71.09	71.09	100.00

Table 6: Distribution of Dependent Variable Intention

Dummy Parents' Education

Frequencies Educational Background

Value	Label	N	Raw %	Valid %	Cum. %
0	non academic	9663	46.25	46.25	46.25
1	academic	11228	53.75	53.75	100.00

Table 7: Distribution of Parental Education

Age Categories

Frequencies Age Categories

Value	Label	N	Raw %	Valid %	Cum. %
1	19 years and younger	1840	8.81	8.81	8.81
2	20 - 22 years	9768	46.76	46.76	55.56
3	23 - 25 years	5227	25.02	25.02	80.58
4	26 - 30 years	2443	11.69	11.69	92.28
5	31 years and older	1613	7.72	7.72	100.00

Dummy Age

Frequencies Dummy Age

Value	Label	N	Raw %	Valid %	Cum. %
0	22 years and younger	11608	28.91	55.56	55.56
1	23 years and older	9283	71.09	44.44	100.00

Table 8: Distribution of Age

Dummy Study

Frequencies Dummy Study

Value	Label	N	Raw %	Valid %	Cum. %
0	non technical/natural sciences	12198	58.39	58.39	58.39
1	technical/natural sciences	8693	41.61	41.61	100.00

Table 9: Distribution of Subject of Study

A 3 GAM Model: Regression Results and Visualization

```
##
## =====
## -----
## Model 1      Model 2      Model 3
## -----
## (Intercept)      0.90 ***      3.28 ***      3.25 ***
##                  (0.02)      (0.16)      (0.17)
## selfConcept      -0.54 ***      -0.45 ***
##                  (0.04)      (0.04)
## support          -0.04 *      -0.06 **
##                  (0.02)      (0.02)
## EDF: s(selfAssessment)      7.98 ***      7.96 ***
##                  (8.51)      (8.51)
## age              -1.09 ***
##                  (0.04)
## parentsEducation  0.43 ***
##                  (0.04)
## study            0.19 ***
##                  (0.04)
## -----
## AIC      25128.09      19787.71      18630.00
## BIC      25136.04      19874.98      18740.97
## Log Likelihood -12563.05      -9882.87      -9301.03
## Deviance   25126.09      19765.74      18602.07
## Num. obs.   20891      20891      20891
## Deviance explained      0.21      0.26
## Dispersion      1.00      1.00
## R^2      0.26      0.31
## GCV score     -0.05      -0.11
## Num. smooth terms      1      1
## =====
## *** p < 0.001; ** p < 0.01; * p < 0.05
```

Table 11: Regression Results Full Model (GAM) using robust standard errors and splines (own computations)

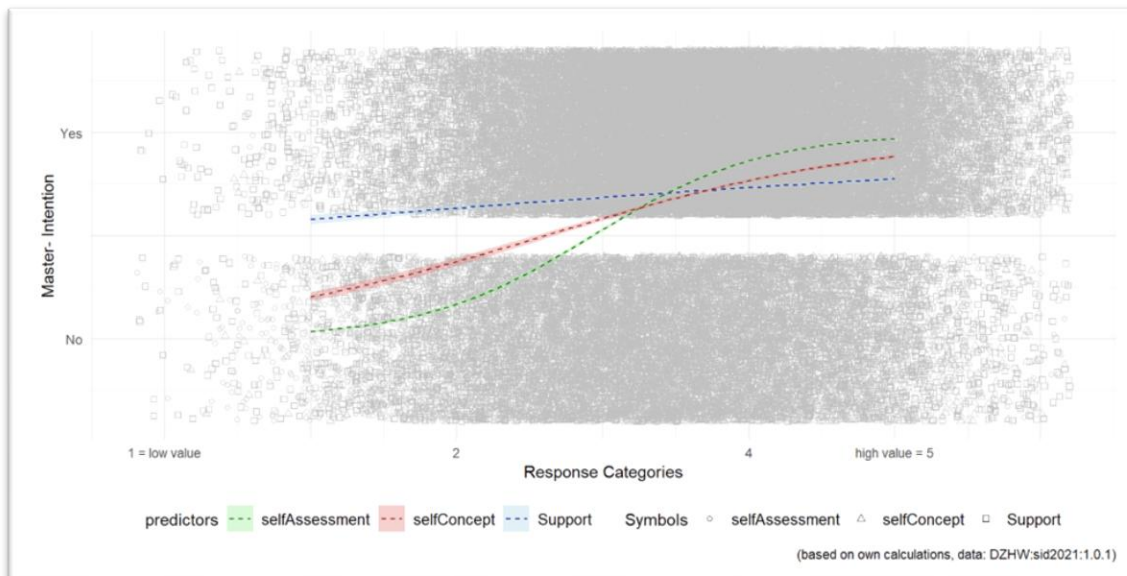


Fig. 11: Visualisation of Regression Results Full Model (GAM)

A 4 Regression Results : Generalized Linear Models in Age Groups

	Age <= 19 years	Age 20 to 22 years	Age 23 to 25 years	Age 26 to 30 years	Age >= 31 years
(Intercept)	-4.11 *** (0.55)	-4.21 *** (0.21)	-4.46 *** (0.24)	-4.67 *** (0.34)	-6.05 *** (0.46)
selfAssessment	2.38 *** (0.17)	2.09 *** (0.07)	1.96 *** (0.08)	1.93 *** (0.10)	1.71 *** (0.12)
selfConcept	-0.51 ** (0.16)	-0.46 *** (0.06)	-0.43 *** (0.07)	-0.58 *** (0.10)	-0.10 (0.13)
support	-0.21 * (0.10)	-0.08 * (0.04)	-0.07 (0.04)	0.02 (0.05)	-0.00 (0.07)
parentsEducation	0.67 *** (0.15)	0.45 *** (0.06)	0.39 *** (0.07)	0.27 ** (0.10)	0.07 (0.12)
study	0.09 (0.15)	0.31 *** (0.06)	0.03 (0.07)	0.06 (0.10)	0.21 (0.12)
AIC	1160.04	7534.41	5298.50	2702.92	1764.59
BIC	1193.15	7577.53	5337.87	2737.73	1796.91
Log Likelihood	-574.02	-3761.20	-2643.25	-1345.46	-876.30
Mc Fadden R ²	0.26	0.21	0.20	0.20	0.20
Deviance	1148.04	7522.41	5286.50	2690.92	1752.59
Num. obs.	1840	9768	5227	2443	1613

*** p < 0.001; ** p < 0.01; * p < 0.05

Table 11: Regression Results Generalized Linear Models in Age Groups

A 5 Average Marginal Effects (AMEs) for each age group

AME Summary for Age <= 19 years						
factor	AME	SE	z	p	lower	upper
parentsEducation	0.0632035	0.0142390	4.4387485	0.0000090	0.0352955	0.0911115
selfAssessment	0.2240896	0.0130536	17.1668923	0.0000000	0.1985050	0.2496742
selfConcept	-0.0480073	0.0145056	-3.3095750	0.0009344	-0.0764377	-0.0195769
study	0.0084464	0.0144911	0.5828709	0.5599802	-0.0199556	0.0368484
support	-0.0199906	0.0091133	-2.1935767	0.0282659	-0.0378523	-0.0021290

Table 12: Regression Results: Average Marginal Effects, age <=19 years

AME Summary for Age 20 to 22 years						
factor	AME	SE	z	p	lower	upper
parentsEducation	0.0534366	0.0069544	7.683796	0.0000000	0.0398061	0.0670670
selfAssessment	0.2509215	0.0061315	40.923237	0.0000000	0.2389039	0.2629390
selfConcept	-0.0547164	0.0074569	-7.337701	0.0000000	-0.0693316	-0.0401011
study	0.0368089	0.0072433	5.081806	0.0000004	0.0226123	0.0510054
support	-0.0101220	0.0043909	-2.305212	0.0211547	-0.0187281	-0.0015160

Table 13: Regression Results: Average Marginal Effects, age 20 to 22 years

AME Summary for Age 23 to 25 years

factor	AME	SE	z	p	lower	upper
parentsEducation	0.0653870	0.0112227	5.8263087	0.0000000	0.0433909	0.0873832
selfAssessment	0.3271506	0.0085994	38.0434566	0.0000000	0.3102961	0.3440051
selfConcept	-0.0715262	0.0116817	-6.1229210	0.0000000	-0.0944219	-0.0486304
study	0.0056410	0.0115209	0.4896276	0.6243974	-0.0169396	0.0282215
support	-0.0119985	0.0069951	-1.7152646	0.0862967	-0.0257086	0.0017117

Table 14: Regression Results: Average Marginal Effects, age 23 to 25 years

AME Summary for Age 26 to 30 years

factor	AME	SE	z	p	lower	upper
parentsEducation	0.0507864	0.0176408	2.8789116	0.0039905	0.0162110	0.0853619
selfAssessment	0.3589704	0.0124350	28.8677374	0.0000000	0.3345983	0.3833426
selfConcept	-0.1081149	0.0182381	-5.9279667	0.0000000	-0.1438609	-0.0723688
study	0.0102182	0.0178447	0.5726178	0.5669035	-0.0247568	0.0451931
support	0.0030123	0.0101679	0.2962587	0.7670326	-0.0169164	0.0229411

Table 15: Regression Results: Average Marginal Effects, age 26 to 30 years

AME Summary for Age >= 31 years

factor	AME	SE	z	p	lower	upper
parentsEducation	0.0126845	0.0219575	0.5776848	0.5634770	-0.0303514	0.0557204
selfAssessment	0.3124690	0.0150753	20.7272669	0.0000000	0.2829221	0.3420160
selfConcept	-0.0174911	0.0229251	-0.7629659	0.4454838	-0.0624235	0.0274413
study	0.0387234	0.0227395	1.7029184	0.0885833	-0.0058451	0.0832919
support	-0.0008977	0.0120924	-0.0742332	0.9408248	-0.0245984	0.0228031

Table 16: Regression Results: Average Marginal Effects, age >= 31 years

A 6 further Visualisations

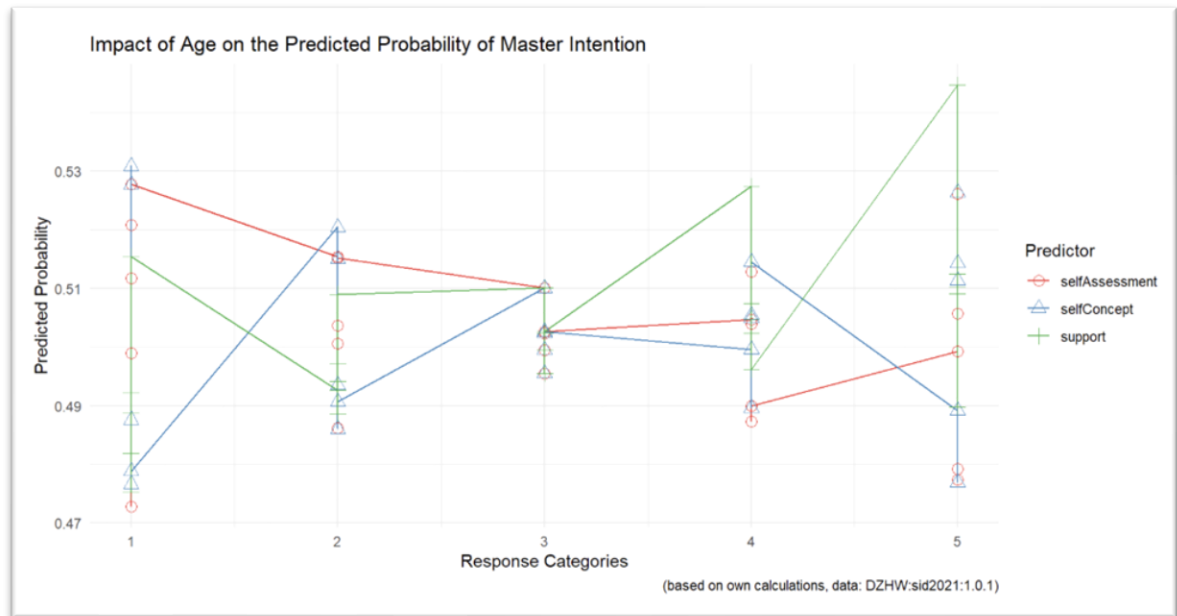


Fig.12: Visualisation Impact of Age in the Response Categories

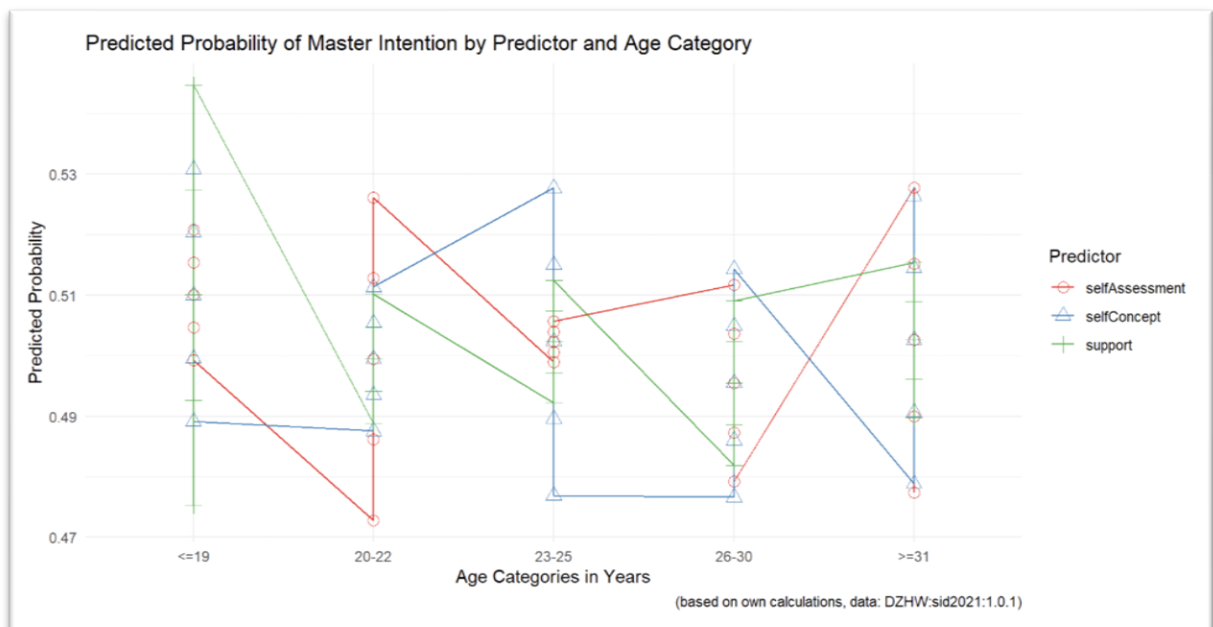


Fig.13: Visualisation Impact of Age in the Age Categories

Appendix B (Electronic)

This study and its code can be accessed <https://github.com/UlrikeJooss/BAThesis>

The study was conducted using the programming language R and RMarkdown, tools designed for reproducible research.

The *.Rmd- file* includes:

- Sample Construction
- Variable Construction
- All Testing Procedures
- All Regression Equations
- All Visualizations
- Formulary

Additionally, I will provide the *.Rmd- file* in a rendered *HTML- version*, where all inputs and outputs are clearly structured and visible.

For detailed insights and full transparency of the analysis, please refer to the provided link.

Eigenständigkeitserklärung

Ich versichere hiermit, dass ich die vorgelegte Bachelorarbeit eigenständig und ohne fremde Hilfe verfasst, keine anderen als die angegebenen Quellen verwendet und die den benutzten Quellen entnommenen Passagen als solche kenntlich gemacht habe. Diese Bachelorarbeit ist in dieser oder einer ähnlichen Form in keinem anderen Kurs und/oder Studiengang als Studien- oder Prüfungsleistung vorgelegt worden. Hiermit stimme ich zu, dass die vorliegende Arbeit von der Prüferin/dem Prüfer in elektronischer Form mit entsprechender Software überprüft wird.

Pollach, 10.12.2024

Ort, Datum

C. Ulrike Jaass

Unterschrift des/der Studierenden