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Student Well-Being:

The role of socio-demographic background, contextual conditions, and study demands and resources on the well-being of students in the European Higher Education Area

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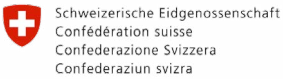

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1 Introduction

The situation of students' well-being has been described as a 'mental health crisis on campus' even before the event of the Covid-19 pandemic (Burwell, 2018). In the wake of the Covid-19 pandemic, the rise of mental health issues and poor well-being among students in European higher education has raised quite some concerns among policymakers. It quickly became clear that the Covid-19 pandemic and measures to tackle it, such as social distancing, lockdowns, and remote teaching, had a drastic impact on students' mental health and well-being (Cosma et al., 2023; Doolan et al., 2021; European University Association, 2023). During this period of social isolation and transition to (purely) digital lectures and seminars, particularly contact with fellow students, as well as students' motivation, was lacking, and a general lower level of mental health during and in the wake of the pandemic was reported (Salimi et al., 2021; Haugas & Kendrali, 2024; Schirmer, 2024a). Although most higher education institutions (HEIs) in Europe have now resumed to analogue teaching, with some incorporating digital learning during the Covid-19 pandemic (Schirmer, 2024a), numerous students still continue to face personal challenges (Haugas & Kendrali, 2024) and mental health issues (Cuppen et al., 2024a). Furthermore, in many countries, the cost of living has increased significantly due to ongoing conflicts and high inflation, particularly for food and gas. In light of these developments, understanding what shapes students' well-being has become increasingly important.

What are the factors associated with students' well-being? This article attempts a comprehensive examination by taking into account individual as well as study-related conditions and differentiating between demands and resources. To achieve our research goals, we will utilise two types of data sources from the EUROSTUDENT 8 project: the aggregated data and the micro data. The aggregated data includes information from 22 countries within the Higher European Education Area (EHEA), where the micro data includes information of 11 countries in the EHEA. Students' well-being will be measured using the WHO-5 Well-Being Scale (World Health Organisation, 1998), which has been demonstrated to be a reliable and valid instrument to differentiate between individuals in terms of their well-being status (Topp et al., 2015).

The present report extends previous research on the factors associated with students' well-being in two ways. Firstly, it builds on the application of the job demands-resources model (Demerouti et al., 2001) to a study context (Lesener et al., 2020) by incorporating students' socio-demographic characteristics as well contextual conditions (academic context and personal study context), which are important for the understanding of student well-being (Cooke et al., 2004, Cullinan et al., 2020) and have been shown to be strongly related to students' study situation (Hauschildt, 2024a). Secondly, due to the data source used, it presents a cross-European perspective not present in previous works, which have often been limited to single courses, institutions, or countries.

2 Background

The literature on mental health among higher education students is as diverse as the issue itself, although much of the literature was produced in the 21st century (Hernández-Torrano et al., 2020). Previous research has taken different angles, examining specific groups of students (e.g., diverse ethnicities, refugees, different study fields, or students with disabilities), specific forms of mental health/well-being (Freeth et al., 2013; Mahadevan et al., 2010), or the impact of institutional university services in times of psychological stress and its impact on students (Hofmann et al., 2017). With regard to external factors, the social environment (friends, family, and work/study colleagues) has also been identified as an important factor in explaining mental health (Campbell et al., 2022). Challenging external circumstances and stressors (exams, work, and personal challenges) have been shown to contribute to students' stress levels (Campbell et al., 2022). As a background factor, the socio-economic background of students, including the financial situation of their parents, also depicts a strong relationship with student well-being (Cuppen et. al., 2024a).

In order to comprehensively investigate the factors associated with students' well-being, we draw on a demands-resources approach to form the basis of our analytical framework. The original job demands-resources model (Demerouti et al., 2001), stemming from psychology, was developed to analyse workplace burnout based on job-related demands and resources and has found widespread application (Demerouti et al., 2001). It has recently been extended to the study context as a "study demands-resources model" (SD-R; Lesener et al., 2020; Gusy et al., 2016). This application translated the original model's demands and resources within the workplace to the higher education context to be able to predict students' engagement and burnout. According to Lesener et al. (2020), (study) demands can be understood as "*those physical, social, or organizational aspects of studying that require sustained physical or mental effort and are therefore associated with certain physiological and psychological costs*" (p. 3). On the other hand, study resources are defined as "*valued physical, psychological, social, or organizational aspects of studying that are functional in achieving study-related goals, reducing study demands, or stimulating personal growth and development*" (ibid, p.3). High study demands are posited to increase the likelihood of negative consequences such as health issues, whereas sufficient study resources serve a motivational function, enhancing student engagement, reducing burnout, and promoting positive outcomes such as improved academic performance and increased commitment (Lesener et al., 2020).

The SD-R is advantageous in that it is clearly geared towards investigating the interplay of demands and resources in higher education studies. However, existing research has paid little attention to the broad context in which these studies have taken place. To address this gap, we broaden previous applications of the study demands-resources framework by emphasising that students' socio-economic background creates a specific set of contextual conditions (academic context and personal study context) within which studies, and the interplay of study demands and resources as suggested in the SD-R, take place.

Socio-demographic background of students in Europe

The socio-demographic landscape of students across Europe is diverse, indicating that studies take place in a wide variety of academic and personal study contexts. Student populations across Europe vary significantly in their socio-demographic composition. Differences of more than a decade in average student age can be found between the 'youngest' (Azerbaijan) and 'oldest' (Iceland) country. While women are the majority in higher education across EUROSTUDENT countries, they remain underrepresented in Science, Technology, Engineering and Mathematics (STEM) fields, with notable variations in gender distribution by field of study, institution type, and degree

level. In many countries, a considerable portion of students are parents, which requires them to reconcile the needs of their family with study and possibly work requirements, especially in the case of young children. Approximately one in four students across EUROSTUDENT countries has an international background, either through being born abroad, having parents born abroad, or having obtained their entry qualification for higher education abroad. Around every seventh student reports being limited in their daily life or studies due to a form of disability. The EUROSTUDENT results of the last round have highlighted the role of students' socio-economic background and their clear association with different academic and personal contexts, which create a student's personal set of contextual conditions (Hauschildt, 2024a).

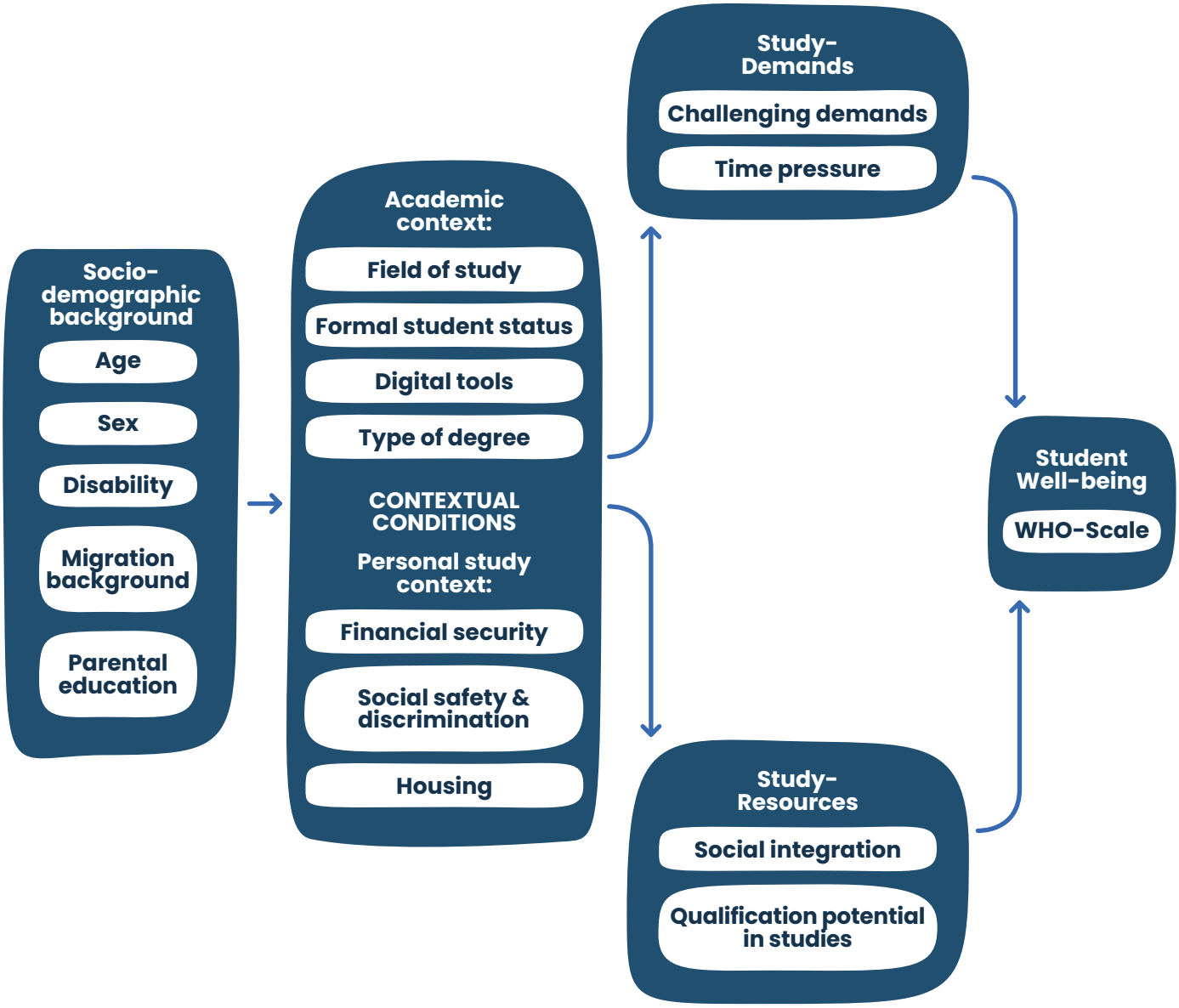
Contextual conditions

Students' academic context, i.e., their field of study, institution type, and degree level is strongly dependent on gender in most countries (Hauschildt, 2024a). Socio-demographic factors also influence the uptake of flexible study modes across countries, with older students and those without tertiary educational background favouring part-time, distance, or online studies (Schirmer, 2024b). Students from non-tertiary backgrounds are predominantly found in non-university settings (Hauschildt, 2024b), whereas universities, typically institutions with the right to award doctoral degrees, have a higher proportion of students with tertiary educated parents (Schirmer, 2024b). In several countries, the availability of study resources such as computers, internet, a desk, and a quiet place to study can also depend on the students' parents' educational background (Hauschildt, 2024b).

Personal study context is also often strongly related to students' socio-economic background. Student groups reporting (very) serious financial distress particularly often include, for example, students whose parents are not at all well-off, students with disabilities, and those depending on public support (Gwosć, 2024). The living situation (e.g. living with parents or in student accommodation) and, relatedly, the expenses and commuting time required to attend higher education also vary according to parental background and financial status. Finally, different student groups experience various degrees of discrimination, with women and students with disabilities particularly reporting higher instances of such negative experiences (Menz & Mandl, 2024).

Focusing solely on study demands and resources therefore neglects the importance of students' socio-demographic backgrounds and the resulting inequalities in academic and personal study contexts. This report, therefore, extends the SD-R framework (Lesener et al., 2020) as depicted in Figure 1. Students' socio-demographic background (age, gender, disability, migration background, and parental education) are posited to create *individual contextual conditions* (academic context and personal study context), which, in the framework, are seen to precede the study demands and resources as indicated in the original SD-R model (Lesener et al., 2020). Following previous studies (Lesener et al., 2020; Gusy et al., 2016), study demands include the incompatibility of studies and private life, such as the time pressure during studies. Study resources are based on the social integration at the HEI and the qualification potential inherent in the studies. Student well-being is investigated as the outcome variable.

Figure 1. **Theoretical framework**



Source: *authors' own illustration (2024).*

3 Data and methods

3.1 Data

In this report, we use cross-national data from the EUROSTUDENT 8 project to examine the aforementioned research question. Based on student surveys in various countries, EUROSTUDENT provides data on the social and economic aspects of student life in the European Higher Education Area (EHEA). Students' backgrounds (demographics and social backgrounds), study conditions and experiences (access to and transition within higher education, study conditions and quality, time budget, and mobility), and living conditions (employment, resources, expenses, and housing situation) are just a few of the topics covered on current student life. The information from EUROSTUDENT 8 offers a thorough description, explanation, and evaluation of the current status of the social dimension in the EHEA (for more detail, see https://www.eurostudent.eu/).

EUROSTUDENT covers the following topics:

- Socio-economic background of students
- Transition into and within higher education
- Types and modes of study
- Students' time budget
- Students' employment and internships
- Students' resources
- Students' expenses
- Students' housing situation
- Students' international mobility

For an exhaustive analysis of all topics, see Hauschildt et al. (2024a).

For the current round (8), 25 countries in the EHEA collected data between spring 2022 and summer 2023, except for Switzerland (data collection was done in spring 2020) and Germany (data collection was done during summer 2021). All students enrolled in any national study programme considered as higher education at the time of the survey are part of EUROSTUDENT's target group (corresponds to ISCED (2011) levels 5, 6 and 7).

In this report, we use two types of data sources: aggregated data and micro data. Aggregated data provides a broader and more descriptive view of the EHEA countries, whereas micro data enables us to perform multivariate analyses on students in which we are able to take into account the role of confounding variables on the relationship between our main indicators of interest and well-being.

EUROSTUDENT 8 aggregated data

All participating countries in the EUROSTUDENT project provide aggregated data for public use on the aforementioned topics. All EUROSTUDENT 8 countries that collected data on the core topic of this report, i.e., well-being, are used for the descriptive analyses: Austria, Azerbaijan, Croatia, the Czech Republic, Denmark, Estonia, Finland, France, Georgia, Hungary, Iceland, Ireland, Latvia, Lithuania, Malta, The Netherlands, Norway, Poland, Portugal, Romania, Slovakia, and Sweden. Germany, Spain, and Switzerland are part of EUROSTUDENT 8, but they did not collect data on well-being.[1]

EUROSTUDENT 8 micro data (SUF)

We further analysed the micro data from EUROSTUDENT 8. The micro data is available as an anonymised Scientific Use File (SUF), upon request (Cuppen et al., 2024b).[2] It includes comparable information on the various EUROSTUDENT topics mentioned above: individuals' well-being

1 Aggregated data of EUROSTUDENT 8 can be accessed through the database: https://database.eurostudent.eu/

2 The Scientific Use File of EUROSTUDENT 8 can be requested through https://doi.org/10.21249/DZHW:es8:1.0.0

and mental health, their personal demands and resources, their study demands and resources, and their socio-economic background characteristics. To this date, micro data from the following 18 countries are included in the SUF: Austria, Azerbaijan, Croatia, Czech Republic, Denmark, Finland, Georgia, Germany, Hungary, Iceland, Ireland, Lithuania, Malta, the Netherlands, Poland, Romania, Slovakia, and Sweden. We conducted our analyses on 11 of those countries; for six countries (Azerbaijan, Germany, Lithuania, Romania, Slovakia, and Sweden) information on our dependent variable well-being was not publicly available, and for one country (Austria) information on two independent variables (i.e., commuting time and national job opportunities) was missing.

Our initial sample consisted of 92,586 respondents across 11 countries. After listwise exclusion of missing cases, our sample comprised 74,582 respondents (80.6 %). The descriptive tables (Table A) per country can be found in the Appendix.

3.2 Measurements

3.2.1 Well-being

For measuring our dependent variable, well-being, the World Health Organisation-Five Well-Being Index (WHO-5 index) was used. The WHO-5 index is among the most widely used self-reported measure of one's current well-being (Topp et al., 2015). It was introduced in 1998 (WHO, 1998), it has been translated into more than 30 languages, has been found to have adequate construct validity, and is considered a valid screening tool for depression (Topp et al., 2015). The WHO-5 consists of the following five simple and non-invasive questions:

Over the past two weeks…

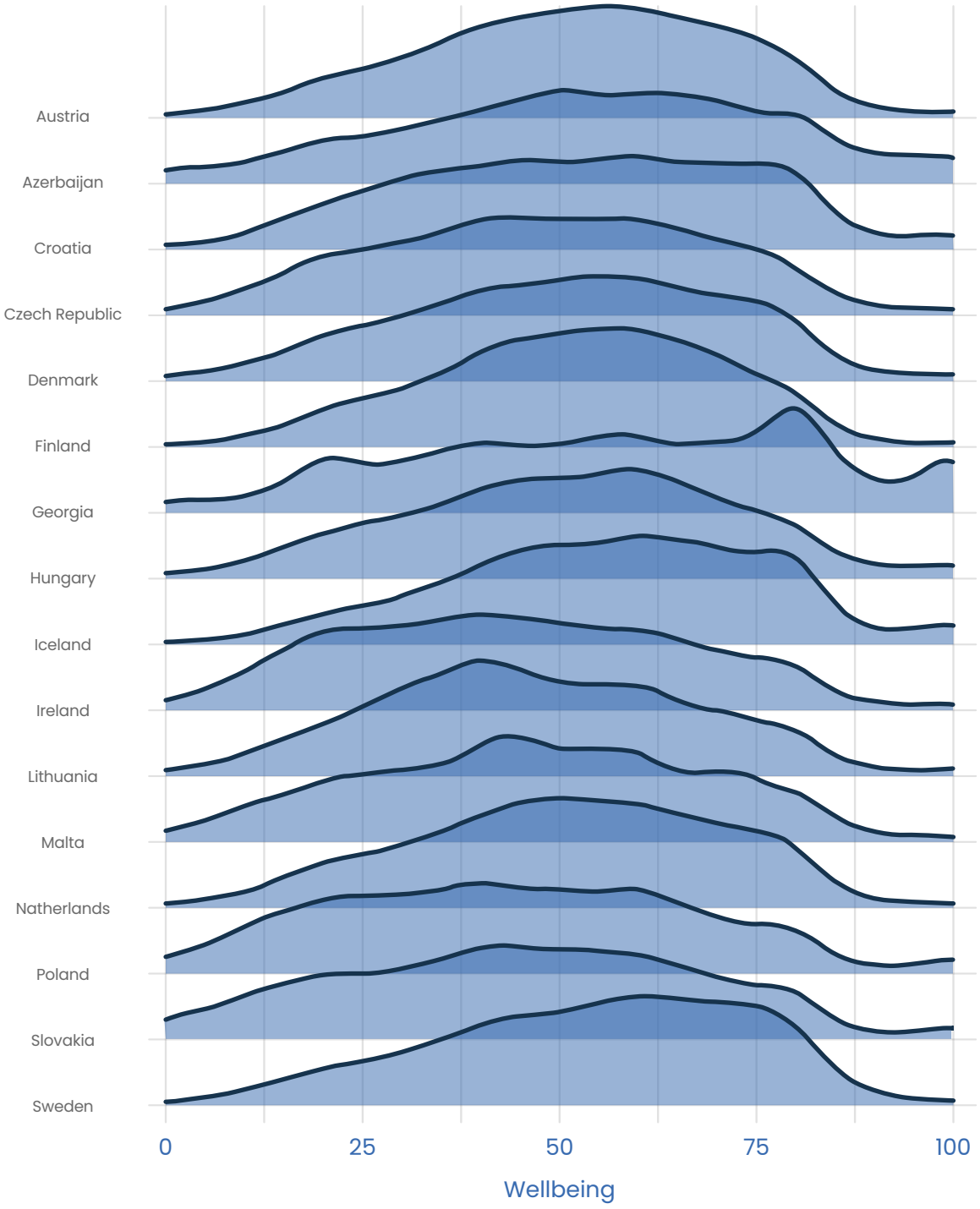
1. I have felt cheerful and in good spirit
2. I have felt calm and relaxed
3. I have felt active and vigorous
4. I woke up feeling fresh and rested
5. My daily life has been filled with things that interest me

These statements are answered on a six-point scale with the following response categories: at no time (0), some of the time (1), less than half of the time (2), more than half of the time (3), most of the time (4), and all of the time (5). The total score – ranging from 0 to 25 – is multiplied by 4, resulting in a scale between 0 (worst well-being possible) to 100 (best imaginable well-being). This scale (0-100) is our dependent variable. Previous research has discussed two cut-off points in particular to indicate what could be considered as a reduced or low well-being (Löwe et al., 2004; Topp et al., 2015). A cut-off point of ≤ 50 points is discussed to be an indication of reduced well-being, whereas a cut-off point of ≤ 28 points could be considered to be a (very) low well-being (and could even be an indication of depressive feelings/depression). Whether the WHO-5 index has acceptable reliability at these cut-off points remains an open empirical question (Sischka et al., 2020).

Figure 2 shows the distribution of the WHO-5 index among the students in the analysed sample. On average, students across all EUROSTUDENT countries have a well-being of 51 points on this 100-point scale. The average score for countries varies by about ten points: the highest well-being score of 56 points was reported in Iceland, whereas the lowest score of 45 points was reported in Poland. When applying the thresholds of a well-being score under respectively 50 or 28 points, approximately 50% of the student population has, according to this who-5 scale, a low well-being (scoring 50 points or lower), and 19% would be considered having a 'very low' well-being (scoring 28 points or lower)[3].

3 These are unweighted cross-country averages

Figure 2. **Distribution of indicator score per country (with 0 being lowest well-being possible, and 100 being highest well-being possible)**



3.2.2 Socio-demographic background characteristics

We included the following socio-demographic background characteristics of students which are integral to the report's theoretical framework: age, gender, having a disability, migration background, parental education, and parental financial status. *Age* was measured in the following four categories: "up to 21 years", "22 to 24 years", "25 to 30 years", and "30 years and over". *Gender* was coded as "female", "male", and "other". *Migration background* was assessed based on the place of birth of the respondent and that of their parents/guardians, as well as with information on whether they have a national or international education background. This variable was recoded into five

categories: "native background, national education background" (i.e., both parents were native-born), "first generation migration background, national education background", "second generation migration background, national education background", "international background, foreign HE qualification", and "other" (i.e., born abroad, but both parents were native-born and the student has a national education background). *Parental education* was measured by asking about the educational level of both parents/caretakers; the highest attained level was coded as such ("No tertiary education (ISCED 0–4)", "Tertiary education (ISCED 5-8)", and "I don't know"). Having a *disability* that limits one's studies was coded (0) no or (1) yes. Lastly, *parental financial status* was assessed with the following question: "How well-off financially do you think your parents (or guardians) are compared with other families?". The five response categories (not at all well-off, not very well-off, average, somewhat well-off, very well-off) were recoded and included as a scale variable in our models. A higher score indicates a higher parental financial status.

3.2.3 Contextual demands and resources

Academic context

We investigated the following study conditions: field of study, student status, access to (digital) tools, and type of degree. *Field of study* was recoded into the ten ISCED-F 2013 categories: (1) Education, (2) Arts and Humanities, (3) Social Sciences, Journalism and Information, (4) Business, Administration and Law, (5) Natural Sciences, Mathematics and Statistics, (6) ICTs, (7) Engineering, Manufacturing and Construction, (8) Agriculture, Forestry, Fisheries and Veterinary, (9) Health and Welfare, and (10) Services. *Formal student status* was coded as (0) full-time or (1) part-time. *Access to (digital) tools* was measured with the following question: "In your home, when you need it for your studies, do you have access to …?". Respondents were asked to indicate the accessibility on a 5-point Likert scale – ranging from never to always (with an additional category "not relevant for my studies", which we coded as always) – on the following aspects: a computer/laptop/tablet, a desk, sufficient internet connection, and a quiet place to study. We averaged the scores for these items and created one scale (Cronbach's alpha = 0.61), which we recoded to "low (score<4)", "average (score 4 to 5)" and "high (score>5)". *Type of degree* indicates whether respondents are doing a master's degree yes (including a master's degree, long national degree/integrated master's degree, and other postgraduate degree; ISCED 7-8) or not (including short cycle degree, a bachelor's degree, short national degree; all either ISCED 5 or 6).

Personal study context

The following indicators of students' personal study context were examined: experiencing financial difficulties, perceived social safety and discrimination, and housing situation. Respondents were asked to indicate on a 5-point Likert scale to what extent they were experiencing *financial difficulties* at the time of the survey (ranging from "very seriously" to "not at all"). Three categories were created: "no financial difficulties", "somewhat financial difficulties" (score 3 on the scale), "serious financial difficulties". *Social safety* was measured[4] on a 4-point Likert scale (many times in the past year, once or twice in the past year, yes but not in the past year, and never). The average score of these items was calculated (Cronbach's alpha = 0.86), and subsequently recoded into three categories "low perceived social safety (score<3.5)", "medium perceived social safety", and "high perceived social safety (score=4). *Perceived discrimination* was assessed across various dimensions: skin colour, ancestry/nationality, religion, gender, sexuality, age, weight, disability, mental health, income, and/or parents' education. Respondents could indicate if they experienced discrimination by fellow students, teaching staff and/or other HEI staff (yes or no). This was recoded into one dummy variable indicating whether (1) or not (0) they had ever felt

4 The question on perceived social safety was "In the context of your studies: because of who you are, have you: (1) heard, seen, or read others joking about or laughing at you?, (2) "been treated as if you are unfriendly, unhelpful, or rude?", (3) "been called names or heard/seen your identity used as an insult?", (4) "been treated as if others are afraid of you?", (5) "been stared or pointed at?", (6) "been told that you should think, act, or look more like others?", (7) "heard that you or people like you don't belong?", (8) "been asked inappropriate, offensive, or overly personal questions?", (9) "been treated as if you are less smart or capable than others?", (10) "exposed to unwanted sexual attention (i.e. comments, unwanted touching or kisses)?", and (11) "been subjected to physical violence?".

discriminated against on one or more of these grounds. Lastly, housing was measured by asking respondents with whom they were living during the lecture period (and during the week). Four categories were distinguished: "living alone", "living with parents/guardians", "living with family" (e.g., partner, children, etc.), "living with others" (e.g., students, friends, etc.).

3.2.4 Study demands

To examine study demands, we operationalised challenging demands and time pressure. The following factors were measured among students: hours spent on work, hours spent on commuting, hours spent on childcare, and hours spent on studies. *Hours spent on work* refers to the number of hours spent on working during the entire lecture period and was recoded into three categories: "0 hours" (i.e. non-working students), "1-20 hours", and "More than 20 hours". *Hours spent on commuting* refers to the time spent commuting between home and the HEIs and was recoded into the following four categories: between 0-15 minutes, 16-30 minutes, 31-60 minutes, and more than 60 minutes. *Hours spent on childcare* refers to the time spent on childcare and was recoded into three categories: 0h spent on childcare (including those without children), 1–39 hours spent on childcare, and more than 40 hours spent on childcare. *Hours spent on studies* refers to the hours spent on study-related activities. Respondents were asked to indicate the time spent on personal studies and taught studies for each weekday, and this recoded into four categories: 0–19 hours, 20–29 hours, 30–40 hours, and more than 40 hours.

3.2.5 Study resources

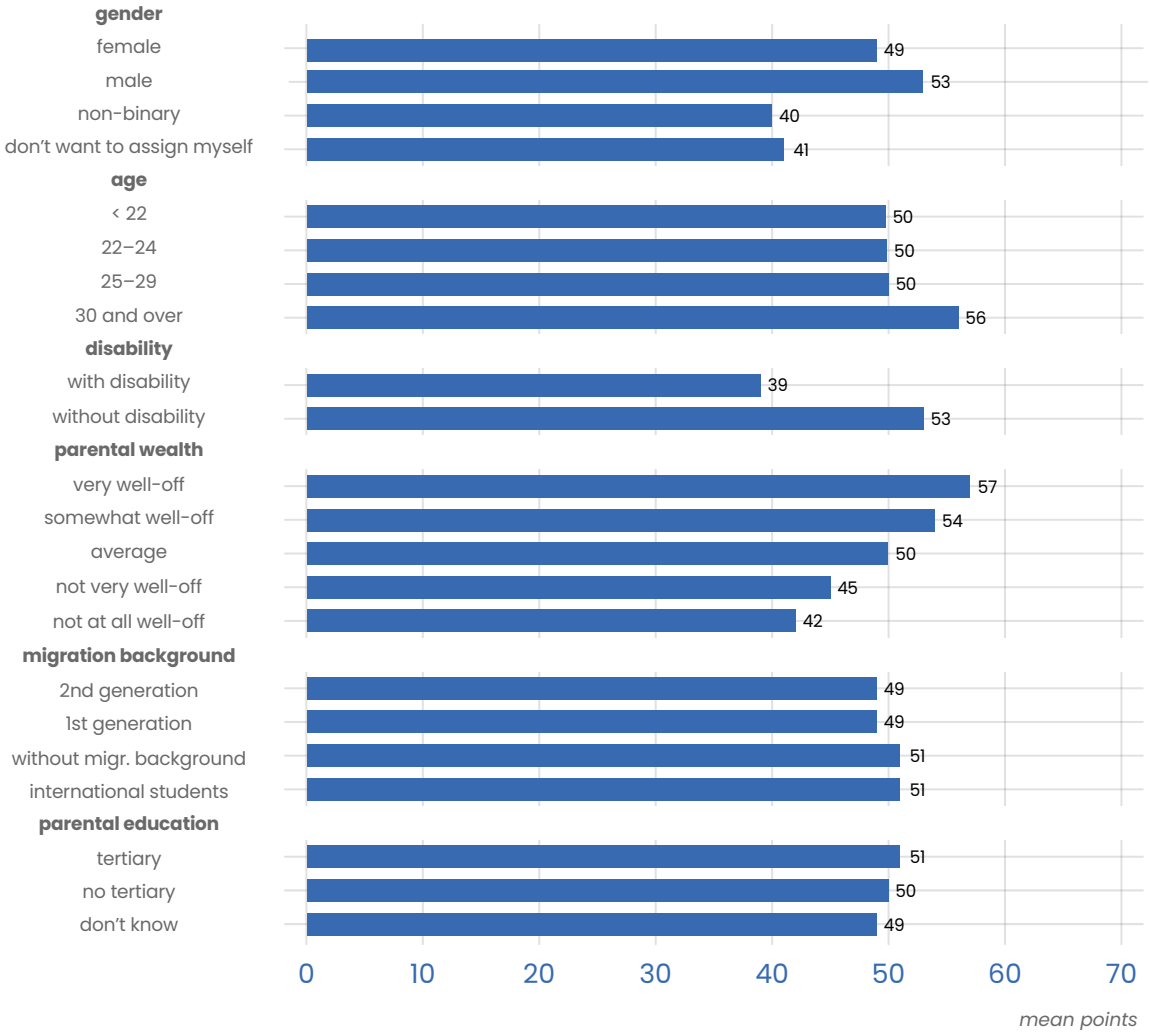
Regarding study resources, we operationalised self-assessed feelings of social integration at the HEI (contact with students, satisfaction with teaching staff, belonging) and qualification potential in studies. *Contact with fellow students* was measured by asking whether the respondent agrees with the statement that they know a lot of fellow students with whom they can discuss subject-related questions. A higher score indicates a stronger agreement. *Satisfaction with teaching staff* was measured using three statements ('the lecturers normally give me helpful feedback on how I am going', 'the lecturers motivate me to do my best work', 'the lecturers are extremely good in explaining things'). The scores were averaged (Cronbach's alpha = 0.81) into one scale, with a higher score indicating a more positive attitude. *Belonging*, or perceived fit at the HEI, was measured with two statements: 'I often have the feeling that I don't really belong in higher education' and 'I am seriously thinking of completely abandoning my higher education studies'. Responses (on a scale from "very strongly agree" to "don't agree at all") were recoded into three categories: low (score<4), middle, and high (score=5). *Qualification potential in studies* was measured by asking students to indicate their personal chances of obtaining an adequate job after graduating from their current study (on a national level). The answers on the scale were reversed (ranging from "very poor" to "very high"), and then standardised per country.

4 Results

4.1 Descriptive findings on aggregated data

This thematic report focuses on well-being as the central outcome variable. To provide an initial impression of students' well-being, the countries' respective aggregated data are compared with respect to different socio-demographic background characteristics introduced in the theoretical background section. Figure 3 shows differences between groups on unweighted cross-country average for students based on gender, age, disability, and parental financial status, while there are no or only marginal differences regarding migration background and parental educational background. For all the personal background characteristics showing notable differences, additional figures with data for each country will be displayed and reported in more detail below.

Figure 3. **Well-being by socio-demographic characteristics**



Source: *EUROSTUDENT 8 aggregated data*

Data source: *EUROSTUDENT 8, TM.31.* ***No data:*** *CH, DE, ES; non-binary: AZ, CZ, DK, EE, GE, HR, HU, LT, LV, MT, NO, PL, PT, SE, SK; don't want to assign myself: DK, FI, FR, GE, HU, LV, NO, PL, SE.* ***Too few cases:*** *non-binary: IS, RO; don't want to assign myself: AZ, IS, MT, SK; 1st generation students: AZ, LT, LV; international students: AZ; don't know: AZ, IS, SK; very well-off: AZ, MT.*

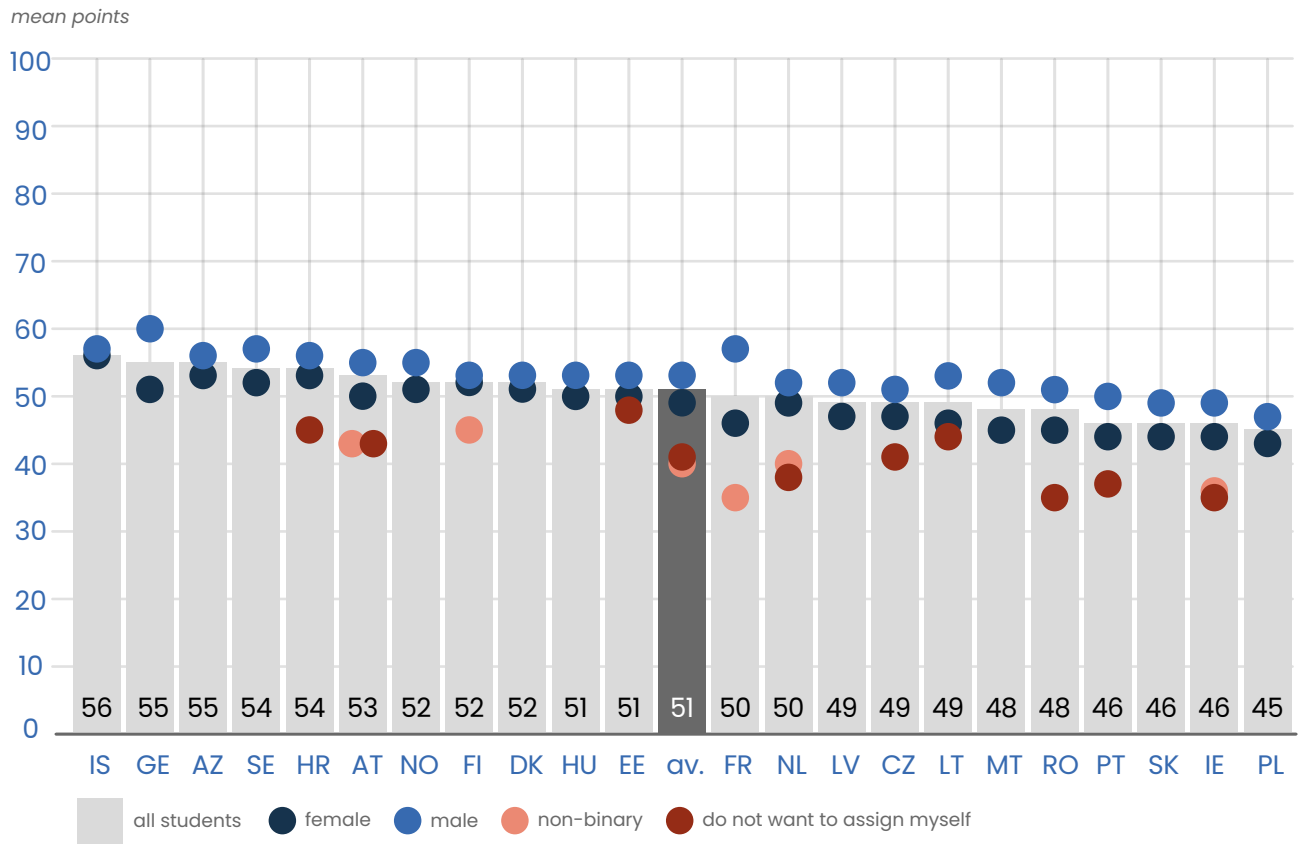
Data collection: *Spring 2022 - summer 2022 except AT, FR, PT, RO (spring - summer 2023).*

EUROSTUDENT question(s): *M1.6. Please indicate for each of the 5 statements which is closest to how you have been feeling over the past 2 weeks. a) I have felt cheerful and in good spirits b) I have felt calm and relaxed c) I have felt active and vigorous d) I woke up feeling fresh and rested e) my daily life has been filled with things that interest me.*

Deviations from EUROSTUDENT survey conventions: *FR, NO.*

Deviations from EUROSTUDENT standard target group: *IE, NL.*

Figure 4. **Average well-being by gender, per country**



Source: *EUROSTUDENT 8 aggregated data*

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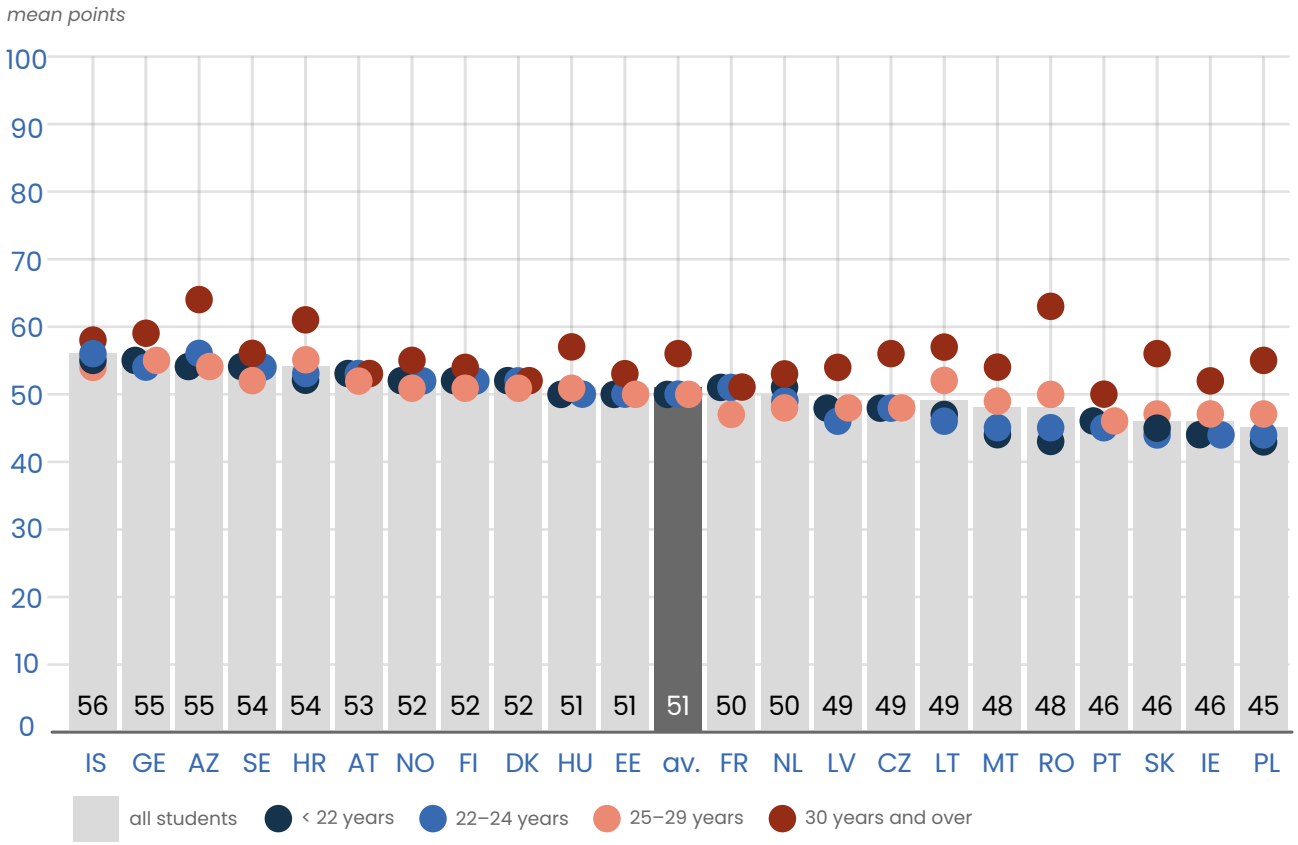
Deviations from EUROSTUDENT survey conventions: *FR, NO.*

Deviations from EUROSTUDENT standard target group: *IE, NL.*

When investigating students' binary gender, it is evident that female students report lower well-being scores than male students do (Figure 4). On average, female students report a well-being of 49 points, whereas male students report an average of 53 points. Among all 22 countries, there is no country where male students report lower well-being than female students. In some countries, such as Iceland and Finland, the differences are minimal (1 point), while in other countries, such as Georgia and France, the differences are more pronounced, with 9 and 11 points, respectively. Additionally, some countries collected data on genders other than female and male. In these countries, both categories "other" and "I prefer not to assign myself into the above-mentioned categories" were offered, while in others, only one of these categories was available. In countries where data were collected on at least one category beyond "male" and "female" and where there were sufficient cases, students identifying as "other" report lower well-being than those identifying as male or female. On average, students identifying as "other" report well-being scores that are 9 points lower compared to female students and 13 points lower compared to male students. In France, the difference of 22 points between students identifying as "other" and male students is the largest. For students who chose "I prefer not to assign myself into the above-mentioned categories", their well-being is, on average, 8 points lower compared to female students and 12 points lower compared to male students. In Estonia, the difference in scores between students who did not specify their gender and female students is very small with 2 points.

Figure 5. **Average well-being by age groups, per country**



Source: *EUROSTUDENT 8 aggregated data*

Data source: *EUROSTUDENT 8, TM.31.* ***No data:*** *CH, DE, ES.*

Data collection: *Spring 2022 - summer 2022 except AT, FR, PT, RO (spring - summer 2023).*

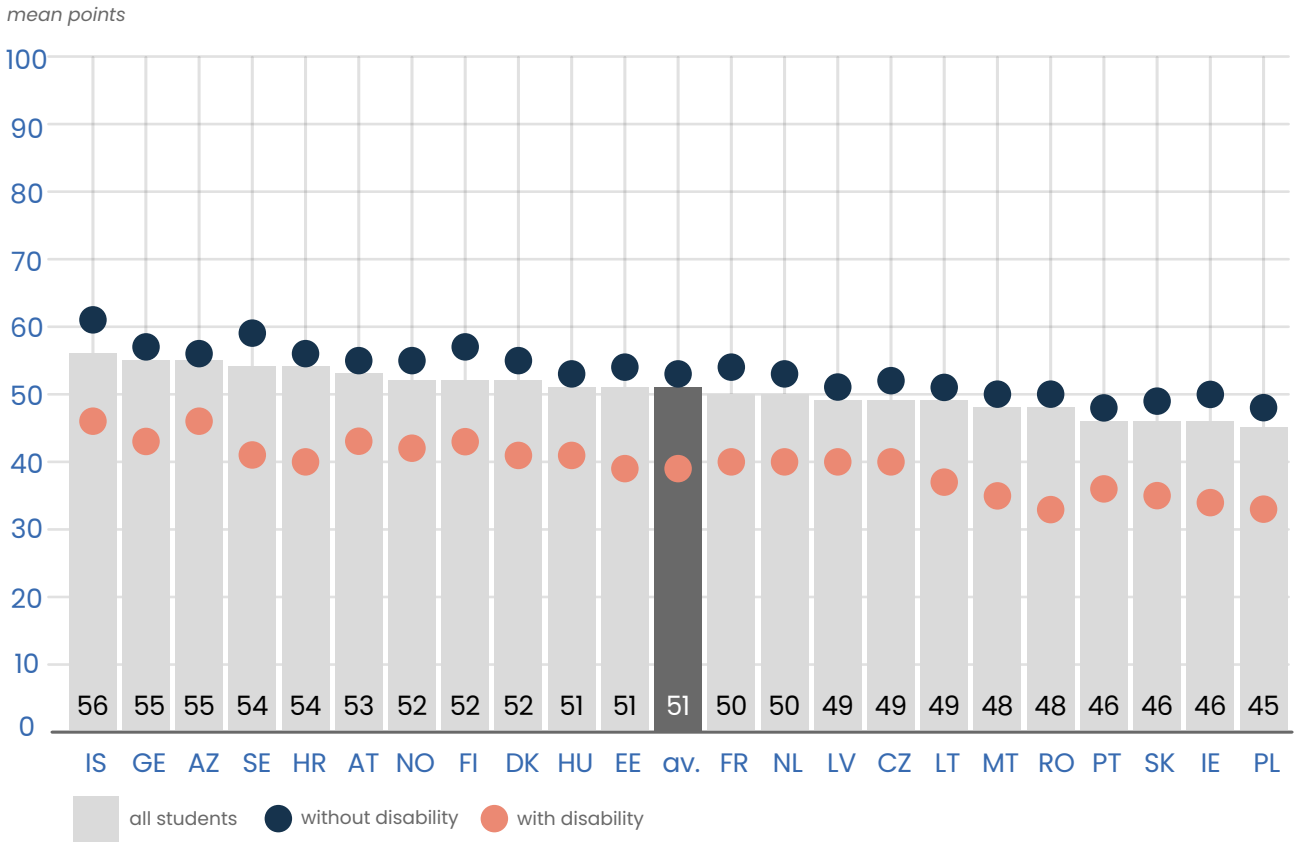
EUROSTUDENT question(s): *M1.6. Please indicate for each of the 5 statements which is closest to how you have been feeling over the past 2 weeks. a) I have felt cheerful and in good spirits b) I have felt calm and relaxed c) I have felt active and vigorous d) I woke up feeling fresh and rested e) my daily life has been filled with things that interest me.*

Deviations from EUROSTUDENT survey conventions: *FR, NO.*

Deviations from EUROSTUDENT standard target group: *IE, NL.*

In terms of age, on average, students aged 30 years and over report the highest well-being scores compared to younger age groups. On average, older students report an average of 56 points, whereas for other age groups, the average is 50 points. In Azerbaijan and Romania, older students show a particularly high well-being with 64 and 63 points, respectively (Figure 5).

Figure 6a. **Average well-being by disability, per country**



Source: *EUROSTUDENT 8 aggregated data*

Data source: *EUROSTUDENT 8, TM.31.* ***No data:*** *CH, DE, ES.*

Data collection: *Spring 2022 - summer 2022 except AT, FR, PT, RO (spring - summer 2023).*

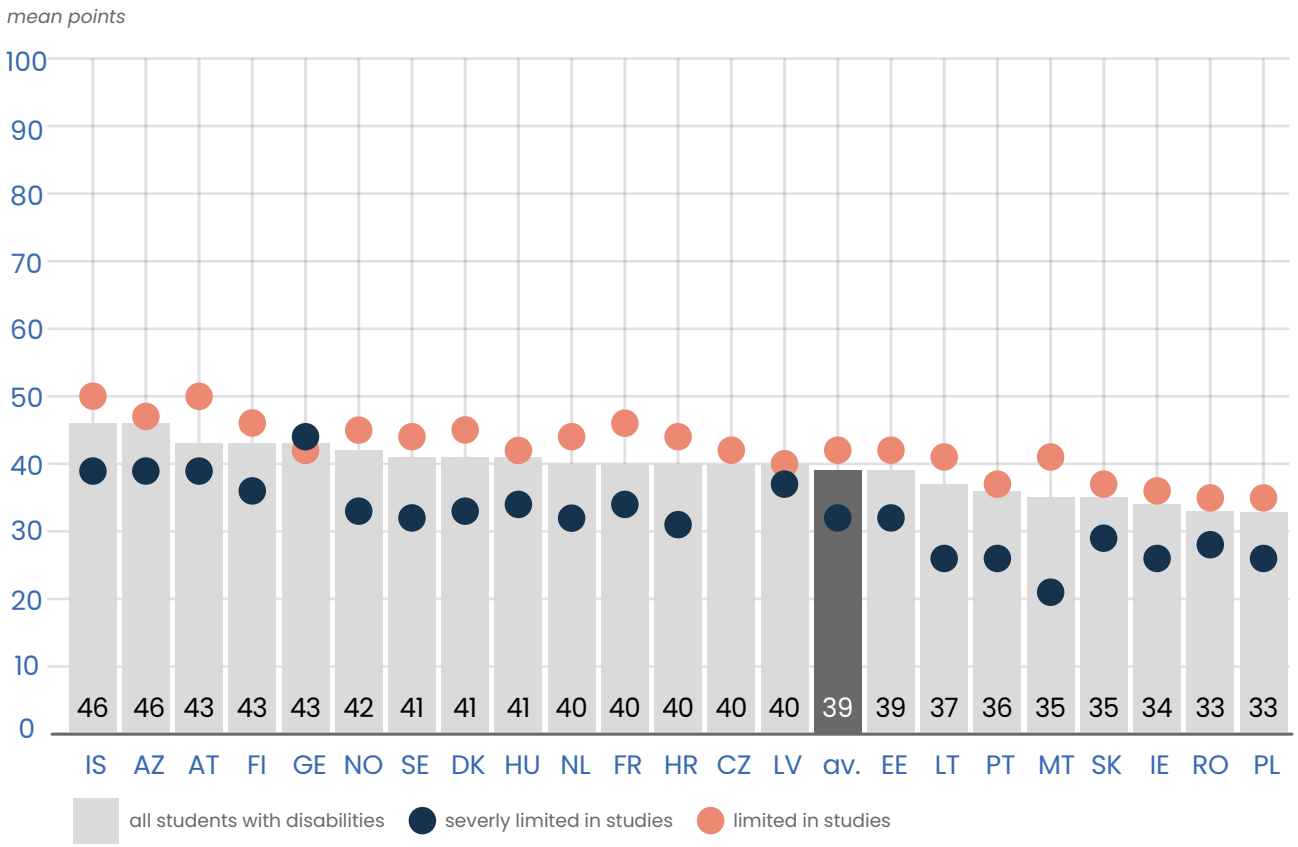
EUROSTUDENT question(s): *M1.6. Please indicate for each of the 5 statements which is closest to how you have been feeling over the past 2 weeks. a) I have felt cheerful and in good spirits b) I have felt calm and relaxed c) I have felt active and vigorous d) I woke up feeling fresh and rested e) my daily life has been filled with things that interest me.*

Deviations from EUROSTUDENT survey conventions: *FR, NO.*

Deviations from EUROSTUDENT standard target group: *IE, NL.*

Figure 6a shows that, on average, students with disabilities that limit them in their studies report a lower well-being score (39 points) compared to students without such disabilities (53 points). This disparity is possibly influenced by the association between well-being and mental health issues, which are the most frequently mentioned type of disability affecting students' studies (Hauschildt, 2024a). However, students also reported various non-mental disabilities, such as chronic physical disease, and mobility impairments. The smallest difference between students with and without disabilities was observed in Azerbaijan (10 points), while the highest was in Sweden (18 points). Examining only those students with disabilities and the severity of their disability (Figure 6b), the descriptive data indicate that the extent to which students have been limited in their studies due to their disability over the six months is associated with their well-being. In all countries except Georgia, students reporting severe limitations have lower well-being scores (an average of 32 points) compared to those who are limited by their disability but not as severely (an average of 42 points).

Figure 6b. **Average well-being by severity of disability, per country**



Source: *EUROSTUDENT 8 aggregated data*

Data source: *EUROSTUDENT 8, TM.31.* ***No data:*** *CH, DE, ES.*

Data collection: *Spring 2022 - summer 2022 except AT, FR, PT, RO (spring - summer 2023).*

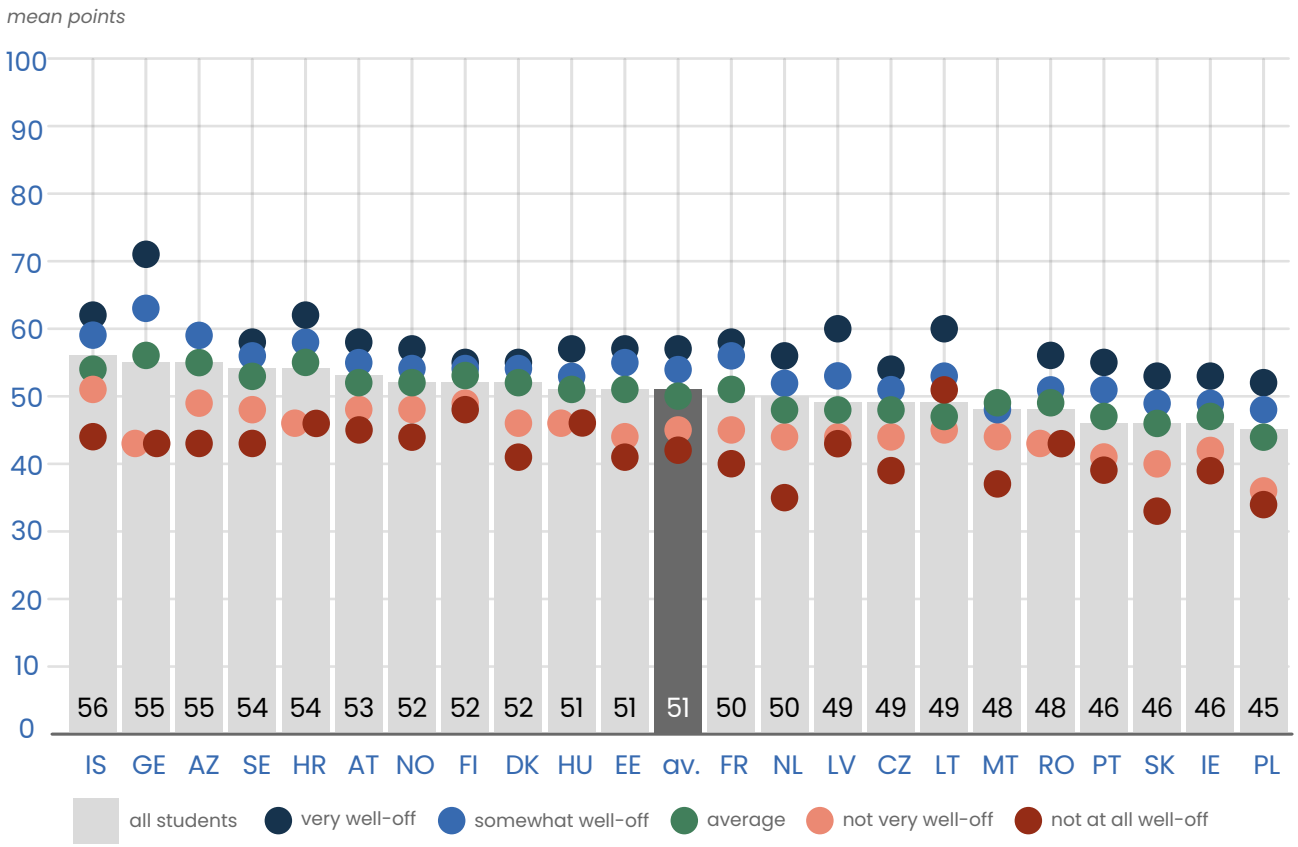
EUROSTUDENT question(s): *M1.6. Please indicate for each of the 5 statements which is closest to how you have been feeling over the past 2 weeks. a) I have felt cheerful and in good spirits b) I have felt calm and relaxed c) I have felt active and vigorous d) I woke up feeling fresh and rested e) my daily life has been filled with things that interest me.*

Deviations from EUROSTUDENT survey conventions: *FR, NO.*

Deviations from EUROSTUDENT standard target group: *IE, NL.*

The analysis of the parental background indicator „parental financial status" reveals an association with students' well-being (Figure 7): well-being gradually declines with decreasing self-reported level of parental financial status. Students with very well-off parents report the highest well-being score (57 points), while students with parents who are not at all well-off report the lowest score (42 points). This pattern is observed in nearly every EUROSTUDENT country which provided data for both reference groups, although in some cases, such as in Georgia and Croatia, students with parents reported as "not at all well-off" and "not very well-off" had similar well-being scores.

Figure 7. **Average well-being by parental financial status, per country**



Source: *EUROSTUDENT 8 aggregated data*

Data source: *EUROSTUDENT 8, TM.31.* ***No data:*** *CH, DE, ES.* ***Too few cases:*** *very well-off: AZ, MT.*

Data collection: *Spring 2022 - summer 2022 except AT, FR, PT, RO (spring - summer 2023).*

EUROSTUDENT question(s): *M1.6. Please indicate for each of the 5 statements which is closest to how you have been feeling over the past 2 weeks. a) I have felt cheerful and in good spirits b) I have felt calm and relaxed c) I have felt active and vigorous d) I woke up feeling fresh and rested e) my daily life has been filled with things that interest me.*

Deviations from EUROSTUDENT survey conventions: *FR, NO.*

Deviations from EUROSTUDENT standard target group: *IE, NL.*

Taken together, these descriptive analyses show that many socio-demographic background characteristics are clearly associated with students' well-being, though the magnitude of these associations varies. With this understanding as a foundation, more in-depth analyses using micro data based on the theoretical model presented at the beginning of this report will be presented in the following section.

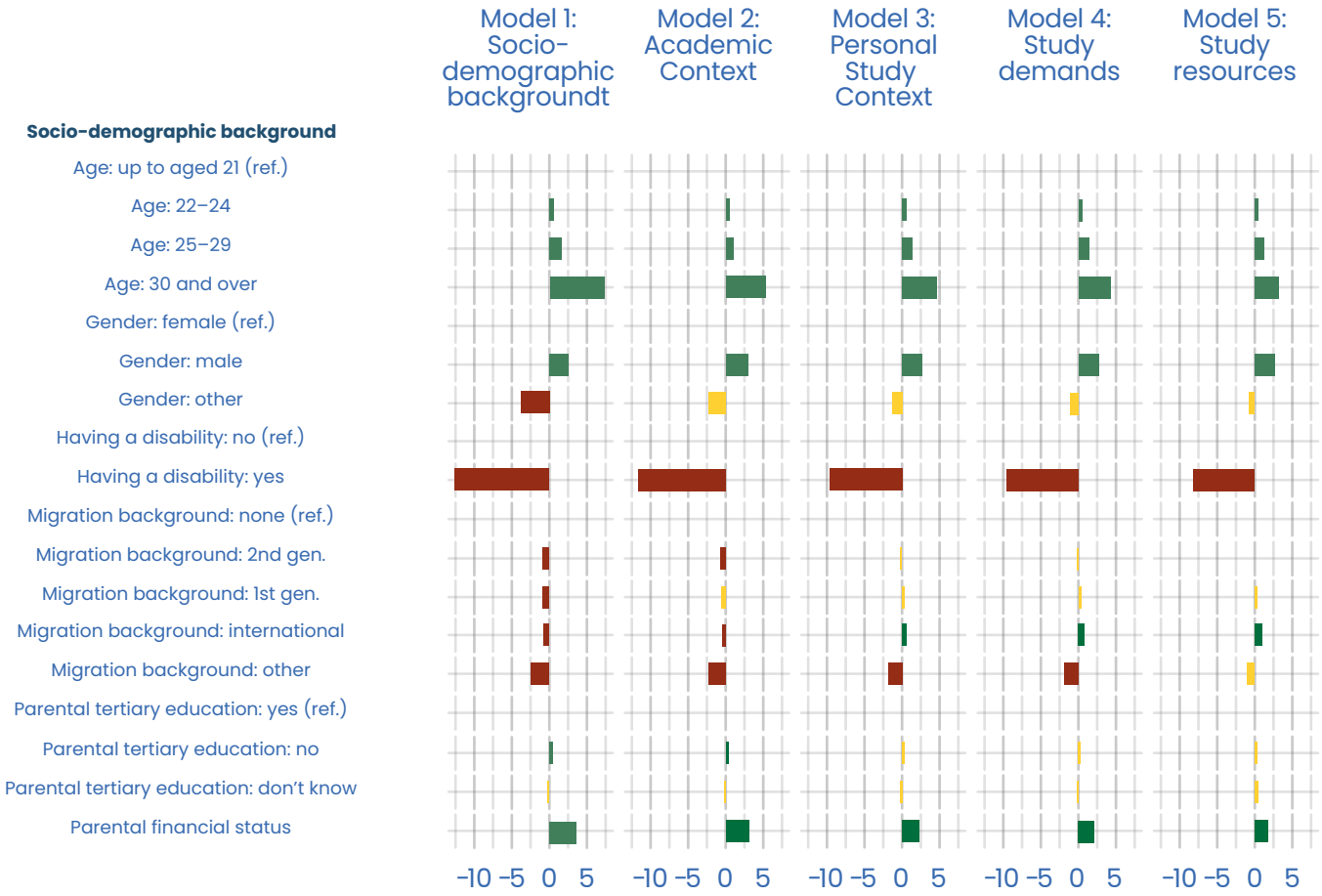
4.2 Analytical findings on micro data

To test the theoretical framework, a multivariate regression analysis was conducted. The findings from our models are an indication of the relationship between well-being and all independent variables, which means that the direction of the relationship is not clear and could go both ways. The results should therefore not be interpreted as causal effects. Since students are nested within their countries, the data were analysed using multilevel models, including two levels: the individual level and the country level. In accordance with our theoretical framework, the models were built as follows: model 1 includes all socio-demographic background characteristics, model 2 includes all socio-demographic background characteristics and academic context, and model 3 includes all socio-demographic background characteristics, academic context,

and personal study context. Next is model 4, which also includes study demands, and, finally, model 5 presents the full model by adding study resources.[5]

From the model without predictors (model 0, not shown) we learned that 3.6 percent of the variation in student well-being can be explained by country differences rather than individual student characteristics. Furthermore, the −2 log likelihood (a measure of model fit with a smaller value meaning more explanatory power) decreases within each subsequent model: that is, from 656,289 in M1 to 642,646 in M5. This indicates that all five parts of our theoretical model seem relevant in explaining a part of student well-being. Figure 8 summarises the results of the regression models. In this graph, positive significant results are presented in green, negative significant results in red, and non-significant results in yellow. The regression output is also presented in a separate table, included in the appendix (Table B).

Figure 8. **Results of two-level multivariate linear regression models of students' well-being (B-coefficients)**



5 We performed several additional (robustness) analyses. First, we added the country sample Austria to our five models, meaning that the variables commuting time (model 4 demands) and national job opportunity (model 5 resources) are deleted from the models (descriptives for Austria are presented in Table A). Conclusions are highly similar. And second, for the full model (model 5) we also performed two-level logistic regression analysis using a categorized version of subjective student well-being: that is low vs. non-low. Based on previous research (e.g. Topp et al., 2015), we categorised 'low' as a score of 28 or lower (20.2 percent in sample of 11 countries), and as a score of 50 or lower (50.2 percent in sample of 11 countries). Again, the conclusions on our main indicators are highly similar.

Figure 8. **Results of two-level multivariate linear regression models of students' well-being (B-coefficients) (continued)**

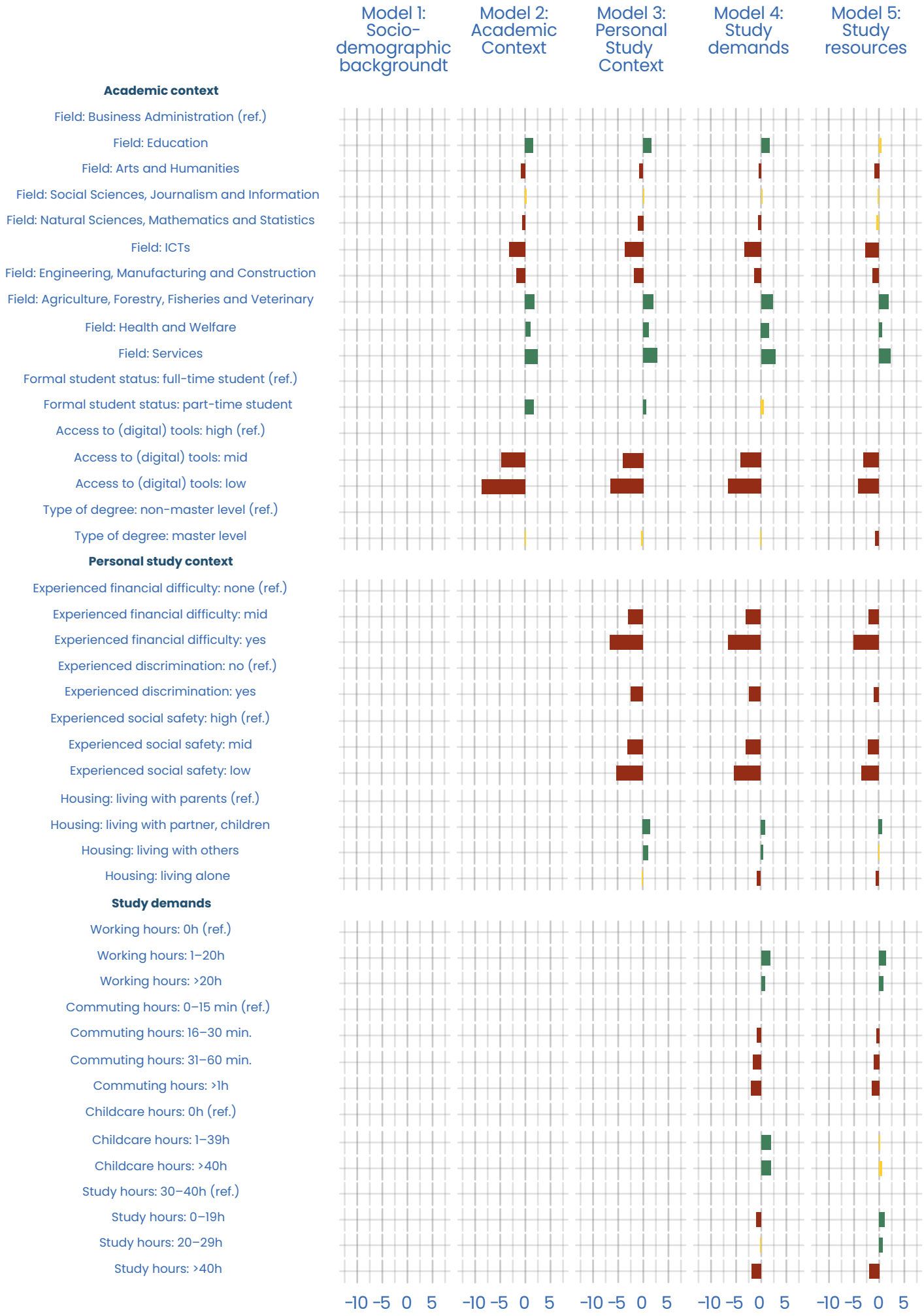
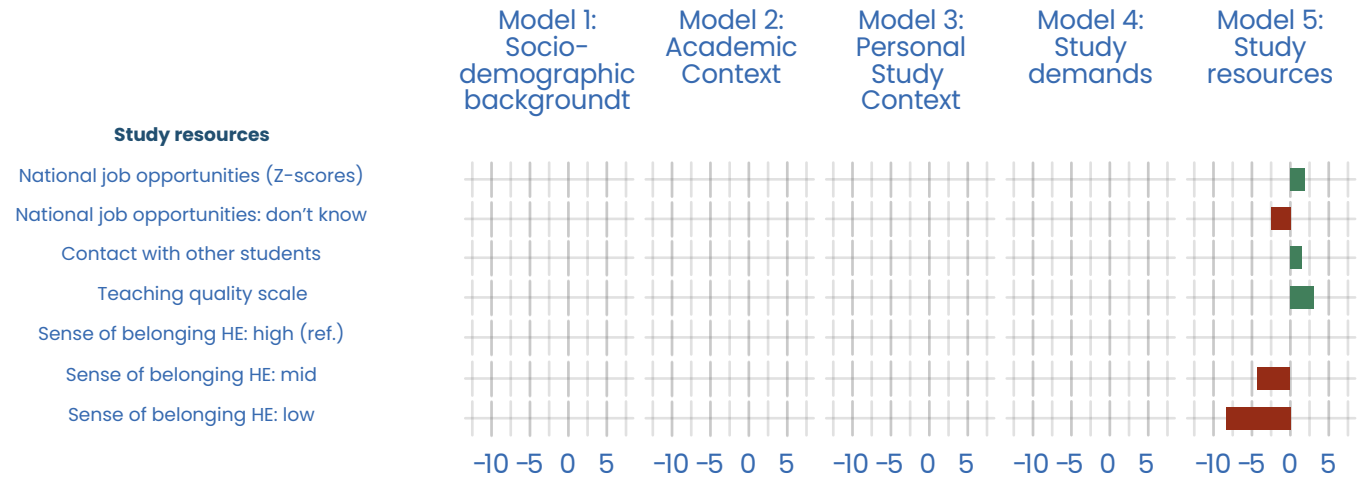


Figure 8. **Results of two-level multivariate linear regression models of students' well-being (B-coefficients) (continued)**



Source: *EUROSTUDENT 8 micro data (Scientific Use File). Red bars = negative significant effects; green bars = positive significant effects (one-tailed).*

Socio-demographic background

Initially, we examined the socio-demographic background of the students who participated in the survey. Regarding age, we found that higher levels of well-being among older students were present in all models, although differences were somewhat smaller when accounted for academic context, study demands and study resources. Furthermore, male students generally report higher well-being than female students across all models, with this difference being larger when accounting for academic context (from model 2 onwards). This is because female students often have better academic conditions, which can be associated with better well-being. Since this factor was not accounted for in the first model, the initial difference in well-being between male and female students well-being (model 1) appears smaller at first glance. Looking at migration background, model 1 initially shows that students without a migration background have higher levels of well-being compared to those with a migration background. However, this effect is fully explained by the academic and personal study context (model 3); after accounting for these factors, international students showed higher levels of well-being. Lastly, having financially better-off parents is positively associated with student well-being, although this effects diminishes across the models. In the model including parental financial status, students with parents without tertiary education report higher well-being than those with parents who have tertiary education.

Academic context

The academic context was proven to significantly impact student well-being (model 2). Specifically, differences were observed based on the field of study. Students studying 'Education' reported higher levels of well-being compared to those studying 'Business, Administration, and Law'. Similarly, students in the fields of 'Agriculture, Forestry, Fisheries or Veterinary', 'Health or Welfare' and 'Services' also reported higher well-being. Students in the fields of 'Arts and Humanities', 'ICTs', 'Engineering', 'Manufacturing and Construction', 'Natural Sciences, Mathematics and Statistics', reported lower levels of well-being. The well-being of students in 'Education' was comparable to that of students in 'Social Sciences, Journalism and Information'.

In addition, part-time students reported higher well-being than full-time students, but this difference can be explained by (differences in) their personal study context, and study demands and resources (as the difference becomes smaller to even insignificant in model 5). The same is true for students in 'Education' and 'Natural Sciences, Mathematics and Statistics'. Interestingly, there was initially no significant difference in well-being between master and non-master students. However, after accounting for all variables in model 5, it was found that master students had slightly less well-being. Lastly, access to (digital)

tools was positively associated with student well-being – even when accounting for personal study context, study demands and resources (model 5).

Personal study context

Students' personal study context was added in model 3. Regarding one's living situation, living with parents or guardians is associated with a lower well-being among students compared to those living in other living situations (e.g. living with others or with a partner and/or children) (model 3). This can be, however, (partly) explained by their study demands and study resources (the difference with the latter group even disappeared in model 5). In comparison to the students living alone, there was initially no difference in comparison to those living with their parents/guardians (model 3), but after taking (especially) study demands into account, living alone is associated with a poorer well-being (model 4). Concerning other aspects of personal study context, it was revealed that experiences of more financial difficulty, more discrimination or less social safety, are associated with a lower sense of well-being among students (model 3 to 5). This is (somewhat) explained by the study demands and study resources they (do not) have, but the relationship of these personal study context aspects and student well-being persist even after accounting for study demands and resources (see model 5).

Study demands

Time constraints, or demands, are indeed related to a student's well-being, as per models 4 and 5, but not necessarily consistently. Having a job alongside one's studies is related to a better well-being, especially when having a paid job for 1 to 20 hours a week. Additionally, students with commuting time show lower levels of well-being. When taking into account study resources (model 5), childcare hours were found to be unrelated to well-being; but when study resources are dismissed from the model (model 4), it can be seen that those with childcare responsibilities actually have a higher well-being. It is important to note that this group of students was very small, indicating that students with childcare responsibilities may actually have more study resources. Lastly, studying for more hours per week is negatively related to a student's well-being (model 5): but when study resources are not considered (model 4), it resulted in that those students studying less than 20 hours per week are less happy than those who study 30 to 40 hours (the conventional norm), potentially, because of the latter group experienced more study resources.

Study resources

It was noted that aspects which are associated with higher levels of well-being among students (see model 5) include: experiencing a higher sense of belonging within higher education (which is related to social integration into the HEI), having more contact with other students about the study subjects, having high-quality lecturers and experiencing good national job opportunities are all associated with higher levels of well-being (see model 5). As was expected, study resources enable students to feel better which is reflected in a positive association with well-being.

5 Conclusion and policy recommendations

5.1 Conclusion

The well-being of students in Europe is a cause of concern; in all participating countries there are substantial shares of the student population who have a relatively low sense of well-being (19%). Although differences exist between countries, it transpires that even in the countries where the average well-being of students is better, up to 11 percent of the student population indicated a low sense of well-being, when applying a threshold of 28 points on the scale of 100 points (Topp et al., 2015). Even though it remains an open empirical question whether the WHO-5 well-being index has an acceptable reliability at this (or any other) threshold (Sischka et al., 2020), these results still indicate that a substantial part of the student population deals with a relatively low well-being.

Within countries, it can be seen that there is (social) inequality in having a poor well-being in the student population. Younger students, female students, students with a disability, and students with economically less privileged parents have a lower sense of well-being than their counterparts. This also highlights the value of including socio-demographic background characteristics in the analyses. We also see that contextual academic conditions matter: students in some study fields are associated with a lower sense of well-being than others, as well as students doing a master's degree and students who have less access to digital tools. With regards to personal study conditions, we found that students who live alone, who experience more financial difficulties, more discrimination or less social safety are associated with having a poorer well-being than their counterparts.

The findings related to study demands and resources confirm the assumptions of the study demands-resources framework: study resources are positively associated with well-being. Students who experience a better personal fit within higher education, who have more contact with other students about their study subjects, who indicate having high quality lecturers and experience better national job opportunities are all, on average, more likely to have a better sense of well-being than their counterparts. On the demand side, it can be seen that higher demands are associated with lesser well-being: students who need more time for commuting and studying (over 40 hours per week) indicate having a lower sense of well-being. On the other hand, having work alongside one's studies is positively related to well-being . Thus, using study demands and resources to explain differences in students' well-being has proven useful, also given the fact that study demands and resources can be, at least to some extent, affected by national policy measures and higher education institutions (HEIs).

5.2 Discussion

By expanding the original study demands-resources framework, this study provided new insights into the role of socio-demographic background characteristics, contextual conditions, and study demands and resources, on the well-being of students. However, we do acknowledge that these are associations with well-being and not causal effects on well-being. In fact, it is important to not turn a blind eye for reversed causality and our findings need to be interpreted with caution. For example, students with a poor well-being, may generally have less contact with fellow students, which may subsequently further reduce their sense of well-being. It is also possible that a third (unobserved) factor influences both investigated factors. We formulated our conclusions with caution by interpretating our findings as relations/associations and not as causal effects. Despite this causality issue, our study still provides important insights in the relationship between individual and contextual factors and student well-being. A key improvement for future research would be to test our extended framework using longitudinal data, in order to tackle issues of (reversed) causality.

Another promising direction for future research is to have a more in-depth look at which students benefit from which types of study resources, or consequently, suffer from which types of study demands (by using interaction effects), under the assumption that future research is able to test the causal relationship between study demands and resources indeed and well-being. Contextual conditions, which were added to expand the framework, play an important role as well as they are also related to the well-being of students, over and above the relationship between well-being and study demands and resources (i.e., even when taking into account the role of study demands and resources). Including these indicators to the study demands and resources framework is therefore an important and promising avenue for future research. In future applications, an effort to further distinguish between demands and resources within the contextual conditions should be made to increase clarity and understand the relations and potential interactions with the study demands and resources on student well-being.

5.3 Policy recommendations

The findings of this study offer some valuable points for policymakers who take interest in improving (overall) student well-being. Even though students are not an isolated group from society, and well-being is also explained by external factors, higher education institutions still should ideally be able to support students in their studies. Identifying which factors are associated with lower (or higher) sense of well-being is a first step to do so.

First of all, we found that some students (female students, students with a disability, and students with economically less privileged parents) are more likely to experience a poorer well-being than other students. A first step is to be aware of these social disparities and to take this into account when implementing policy to improve student well-being.

Second, regarding personal study conditions, experiences of discrimination and social safety at the campus could be further improved by policy makers or higher education institutions (HEIs). HEIs have the responsibility to create a safe and inclusive environment in higher education for which structural changes are needed, such as changes in laws and regulations for HEIs in how to deal with unsafety.[6] More practical solutions, such as anonymous hotlines for reporting negative experiences and sharing unsafe locations (in or around the campus), surveillance, more street lighting (in or around) the campus could also help to reduce these negative experiences. Next, given the established relationship between financial difficulties and well-being among students, HEIs should also explore means of easing the tangible financial struggles they encounter. This may involve initiatives such as scholarships, grants or emergency funds. Perhaps more feasible solutions (that do not involve giving more financial means) are providing more accessible information and increasing awareness of where (or who) they should go to when students experience financial problems.

Finally, regarding study resources, promoting students' social integration into higher education between students and staff, with fellow students, and within the higher educational institution itself is an important and practical improvement. All three forms of contact are positively associated with a better sense of well-being and initiatives to improve this may lead to a better sense of well-being. An example to increase social integration is the organisation of an orientation (or introduction) week among first year students, where students get to know their peers, the campus, and their teachers. Moreover, given the importance of social contact, an important challenge for HEIs or faculties is to keep track of their students and prevent them from becoming isolated (from their peers, from staff, and from their study entirely). However, tracking each

6 An example of tackling social safety in higher education is this special program that has been introduced in the Netherlands: https://www.folia.nl/international/157754/millions-more-for-safe-higher-education

student may not be a very practical (or desirable) solution, but HEIs could work on improving awareness and accessibility of counselling services at their institution, and perhaps integrating them more closely into both academic and social facets of social life. This could also help students with other issues that are related to well-being, such as experiences of discrimination, social unsafety, and financial difficulties.

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Appendix

Chapter 4: Methodological notes on figures of descriptive results

Figure 3, Figure 4, Figure 5, Figure 6a, Figure 6b, Figure 7
FR: Question and answer categories rephrased. Question focused on the past 4 weeks instead of 2, and response options 'Most of the time' and 'More than half the time' were presented as one item (coded 2 while 3 is empty). **NO:** Labels for all categories.

Table A.1. **Descriptive statistics on Scientific Use File, per country (first six countries)**

	Croatia (n=5,482)				Czech Rep. (n=12,929)				Denmark (n=7,117)				Finland (n=5,148)				Georgia (n=1,549)				Hungary (n=11,014)			
	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.
Well-being (WHO-5 scale)	0	100	52.8	21.2	0	100	48.5	20.6	0	100	51.2	20.1	0	100	52.3	18.2	0	100	56.7	25.0	0	100	51.5	20.6
Age: up to aged 21	0	1	43%		0	1	39%		0	1	15%		0	1	11%		0	1	58%		0	1	38%	
Age 22-24	0	1	38%		0	1	41%		0	1	41%		0	1	31%		0	1	29%		0	1	33%	
Age 25-29	0	1	12%		0	1	12%		0	1	30%		0	1	28%		0	1	12%		0	1	15%	
Age 30 and over	0	1	7%		0	1	8%		0	1	15%		0	1	30%		0	1	1%		0	1	14%	
Gender: Female	0	1	72%		0	1	60%		0	1	60%		0	1	66%		0	1	63%		0	1	63%	
Male	0	1	28%		0	1	40%		0	1	40%		0	1	34%		0	1	37%		0	1	37%	
Other	0	0	0%		0	1	0%		0	0	0%		0	0	0%		0	0	0%		0	0	0%	
Having a disability: No	0	1	85%		0	1	75%		0	1	74%		0	1	67%		0	1	90%		0	1	90%	
Yes	0	1	15%		0	1	25%		0	1	26%		0	1	33%		0	1	10%		0	1	10%	

	Croatia (n=5,482)				Czech Rep. (n=12,929)				Denmark (n=7,117)				Finland (n=5,148)				Georgia (n=1,549)				Hungary (n=11,014)			
	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.
Migration background: No	0	1	72%		0	1	78%		0	1	67%		0	1	87%		0	1	87%		0	1	84%	
Second gen.	0	1	21%		0	1	6%		0	1	10%		0	1	3%		0	1	2%		0	1	5%	
First gen.	0	1	4%		0	1	2%		0	1	5%		0	1	2%		0	1	2%		0	1	1%	
International	0	1	3%		0	1	15%		0	1	18%		0	1	6%		0	1	7%		0	1	10%	
Other	0	1	1%		0	0	0%		0	1	1%		0	1	1%		0	1	1%		0	0	0%	
Parental tertiary educational background: No	0	1	55%		0	1	46%		0	1	24%		0	1	30%		0	1	15%		0	1	41%	
Yes	0	1	44%		0	1	53%		0	1	74%		0	1	68%		0	1	82%		0	1	58%	
Don't know	0	1	1%		0	1	1%		0	1	3%		0	1	2%		0	1	3%		0	1	1%	
Parental financial situation	-2	2	0.1	0.8	-2	2	0.3	0.9	-2	2	0.2	0.9	-2	2	0.2	0.9	-2	2	0.0	0.9	-2	2	0.3	0.8
Field of study: Education	0	1	7%		0	1	10%		0	1	5%		0	1	5%		0	1	4%		0	1	11%	
Arts and humanities	0	1	8%		0	1	10%		0	1	12%		0	1	14%		0	1	19%		0	1	7%	
Social sciences, journalism and information	0	1	6%		0	1	10%		0	1	9%		0	1	7%		0	1	12%		0	1	13%	
Business, administration and law	0	1	21%		0	1	18%		0	1	18%		0	1	13%		0	1	21%		0	1	26%	
Natural sciences, mathematics and statistics	0	1	6%		0	1	8%		0	1	5%		0	1	5%		0	1	8%		0	1	3%	
ICTs	0	1	10%		0	1	9%		0	1	10%		0	1	8%		0	0	0%		0	1	9%	
Engineering, manufacturing and construction	0	1	21%		0	1	16%		0	1	22%		0	1	15%		0	1	8%		0	1	15%	
Agriculture, forestry, fisheries and veterinary	0	1	3%		0	1	3%		0	1	1%		0	1	10%		0	1	8%		0	1	3%	
Health and welfare	0	1	19%		0	1	12%		0	1	16%		0	1	17%		0	1	17%		0	1	8%	
Services	0	1	1%		0	1	4%		0	1	3%		0	1	6%		0	1	2%		0	1	4%	

	Croatia (n=5,482)				Czech Rep. (n=12,929)				Denmark (n=7,117)				Finland (n=5,148)				Georgia (n=1,549)				Hungary (n=11,014)			
	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.
Formal student status: Fulltime student	0	1	83%		0	1	88%		1	1	100%		0	1	86%		1	1	100%		0	1	78%	
Parttime student	0	1	17%		0	1	12%		0	0	0%		0	1	14%		0	0	0%		0	1	22%	
Access to (digital) tools: Low	0	1	12%		0	1	11%		0	1	13%		0	1	13%		0	1	26%		0	1	10%	
Mid	0	1	49%		0	1	58%		0	1	45%		0	1	43%		0	1	41%		0	1	49%	
High	0	1	39%		0	1	31%		0	1	42%		0	1	44%		0	1	34%		0	1	41%	
Type of degree: Master level	0	1	37%		0	1	35%		0	1	20%		0	1	30%		0	1	25%		0	1	34%	
Other level	0	1	63%		0	1	65%		0	1	80%		0	1	70%		0	1	75%		0	1	66%	
Experienced financial difficulty: None	0	1	57%		0	1	52%		0	1	46%		0	1	55%		0	1	28%		0	1	55%	
Mid	0	1	26%		0	1	22%		0	1	26%		0	1	23%		0	1	30%		0	1	24%	
Yes	0	1	17%		0	1	26%		0	1	28%		0	1	23%		0	1	41%		0	1	21%	
Experienced discrimination: yes	0	1	20%		0	1	22%		0	1	26%		0	1	17%		0	1	16%		0	1	16%	
No	0	1	80%		0	1	78%		0	1	74%		0	1	83%		0	1	84%		0	1	84%	
Experienced social safety: Low	0	1	14%		0	1	25%		0	1	17%		0	1	32%		0	1	21%		0	1	25%	
Mid	0	1	26%		0	1	34%		0	1	30%		0	1	32%		0	1	25%		0	1	29%	
High	0	1	60%		0	1	41%		0	1	52%		0	1	36%		0	1	54%		0	1	46%	
Housing situation: living with parents	0	1	46%		0	1	33%		0	1	6%		0	1	4%		0	1	68%		0	1	32%	
Living with partner, children	0	1	13%		0	1	27%		0	1	39%		0	1	47%		0	1	8%		0	1	26%	
Living with others	0	1	30%		0	1	32%		0	1	25%		0	1	9%		0	1	15%		0	1	31%	
Living alone	0	1	11%		0	1	8%		0	1	30%		0	1	40%		0	1	9%		0	1	11%	
Working hours: 0h	0	1	54%		0	1	33%		0	1	35%		0	1	40%		0	1	66%		0	1	43%	

	Croatia (n=5,482)				Czech Rep. (n=12,929)				Denmark (n=7,117)				Finland (n=5,148)				Georgia (n=1,549)				Hungary (n=11,014)			
	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.
1-20h	0	1	21%		0	1	45%		0	1	59%		0	1	33%		0	1	11%		0	1	24%	
>20h	0	1	25%		0	1	22%		0	1	6%		0	1	27%		0	1	22%		0	1	33%	
Commuting hours: 0-15 min.	0	1	27%		0	1	20%		0	1	38%		0	1	37%		0	1	16%		0	1	26%	
16-30 min.	0	1	33%		0	1	27%		0	1	31%		0	1	31%		0	1	28%		0	1	27%	
31-60 min.	0	1	29%		0	1	26%		0	1	23%		0	1	17%		0	1	42%		0	1	28%	
>1h	0	1	11%		0	1	27%		0	1	8%		0	1	14%		0	1	14%		0	1	18%	
Childcare hours: 0h	0	1	95%		0	1	95%		0	1	92%		0	1	86%		0	1	95%		0	1	92%	
1-39h	0	1	4%		0	1	3%		0	1	5%		0	1	7%		0	1	3%		0	1	6%	
40h or more	0	1	1%		0	1	2%		0	1	3%		0	1	7%		0	1	3%		0	1	2%	
Study hours: 0-19h	0	1	15%		0	1	18%		0	1	7%		0	1	34%		0	1	19%		0	1	26%	
20-29h	0	1	21%		0	1	25%		0	1	19%		0	1	25%		0	1	23%		0	1	26%	
30-40h	0	1	26%		0	1	26%		0	1	38%		0	1	23%		0	1	26%		0	1	22%	
>40h	0	1	38%		0	1	31%		0	1	36%		0	1	18%		0	1	32%		0	1	26%	
National job opportunities (Z-scores)	-2	1	0.0	0.9	-2	1	0.0	0.9	-3	1	0.0	1.0	-3	1	0.0	1.0	-2	1	0.0	1.0	-2	1	0.0	1.0
Don't know	0	1	11%		0	1	14%		0	0	0%		0	1	5%		0	1	6%		0	0	0%	
Contact with other students	-3	1	-0.4	1.2	-3	1	-0.4	1.2	-3	1	-0.5	1.2	-3	1	-0.9	1.4	-3	1	-0.3	1.2	-3	1	-0.4	1.2
Teaching scale	-3	1	-1.0	1.0	-3	1	-0.7	0.9	-3	1	-0.7	0.9	-3	1	-0.8	0.9	-3	1	-0.2	1.0	-3	1	-0.6	1.0
Sense of belonging: Low	0	1	29%		0	1	37%		0	1	29%		0	1	20%		0	1	25%		0	1	33%	
Mid	0	1	27%		0	1	32%		0	1	32%		0	1	33%		0	1	20%		0	1	30%	
High	0	1	44%		0	1	31%		0	1	39%		0	1	46%		0	1	55%		0	1	37%	

Source: *EUROSTUDENT 8 micro data (Scientific Use File) (unweighted)*

Table A.2. **Descriptive statistics on Scientific Use File, per country (last six countries)**

	Iceland (n=2,051)				Ireland (n=12,005)				Malta (n=386)				Netherlands (n=8,144)				Poland (n=8,757)				Austria (n=34,705)			
	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.
Well-being (WHO-5 scale)	0	100	56.6	20.0	0	100	44.8	21.5	0	100	48.4	20.8	0	100	51.3	19.4	0	100	44.6	22.8	0	100	52.2	19.2
Age: up to aged 21	0	1	15%		0	1	51%		0	1	44%		0	1	43%		0	1	42%		0	1	23%	
Age 22-24	0	1	24%		0	1	22%		0	0	0%		0	1	38%		0	1	36%		0	1	32%	
Age 25-29	0	1	24%		0	1	10%		0	0	0%		0	1	15%		0	1	10%		0	1	29%	
Age 30 and over	0	1	38%		0	1	18%		0	1	56%		0	1	4%		0	1	12%		0	1	16%	
Gender: Female	0	1	76%		0	1	64%		0	1	68%		0	1	61%		0	1	65%		0	1	62%	
Male	0	1	24%		0	1	35%		0	1	32%		0	1	38%		0	1	35%		0	1	36%	
Other	0	0	0%		0	1	1%		0	0	0%		0	1	1%		0	0	0%		0	1	2%	
Having a disability: No	0	1	70%		0	1	76%		0	1	85%		0	1	76%		0	1	79%		0	1	79%	
Yes	0	1	30%		0	1	24%		0	1	15%		0	1	24%		0	1	21%		0	1	21%	
Migration background: No	0	1	78%		0	1	53%		0	1	86%		0	1	77%		0	1	94%		0	1	65%	
Second gen.	0	1	5%		0	1	15%		0	1	7%		0	1	11%		0	1	1%		0	1	12%	
First gen.	0	1	2%		0	1	12%		0	0	0%		0	1	3%		0	1	1%		0	1	4%	
International	0	1	11%		0	1	18%		0	1	7%		0	1	8%		0	1	3%		0	1	19%	
Other	0	1	3%		0	1	2%		0	0	0%		0	1	1%		0	1	0%		0	1	0%	
Parental tertiary educational background: No	0	1	37%		0	1	36%		0	1	44%		0	1	26%		0	1	51%		0	1	46%	
Yes	0	1	62%		0	1	60%		0	1	35%		0	1	71%		0	1	47%		0	1	54%	
Don't know	0	1	1%		0	1	4%		0	1	20%		0	1	3%		0	1	2%		0	1	0%	

	Iceland (n=2,051)				Ireland (n=12,005)				Malta (n=386)				Netherlands (n=8,144)				Poland (n=8,757)				Austria (n=34,705)			
	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.
Parental financial situation	-2	2	0.5	1.0	-2	2	0.0	1.0	-2	2	-0.1	0.9	-2	2	0.6	0.9	-2	2	0.4	0.9	-2	2	0.2	0.9
Field of study: Education	0	1	13%		0	1	5%		0	1	16%		0	1	7%		0	1	6%		0	1	14%	
Arts and humanities	0	1	15%		0	1	16%		0	1	9%		0	1	11%		0	1	12%		0	1	10%	
Social sciences, journalism and information	0	1	17%		0	1	7%		0	1	6%		0	1	14%		0	1	12%		0	1	11%	
Business, administration and law	0	1	23%		0	1	18%		0	1	35%		0	1	17%		0	1	20%		0	1	19%	
Natural sciences, mathematics and statistics	0	1	5%		0	1	14%		0	0	0%		0	1	15%		0	1	5%		0	1	10%	
ICTs	0	1	1%		0	1	8%		0	1	6%		0	1	4%		0	1	8%		0	1	7%	
Engineering, manufacturing and construction	0	1	8%		0	1	11%		0	0	0%		0	1	11%		0	1	15%		0	1	13%	
Agriculture, forestry, fisheries and veterinary	0	0	0%		0	1	1%		0	0	0%		0	1	2%		0	1	2%		0	1	1%	
Health and welfare	0	1	18%		0	1	18%		0	1	28%		0	1	17%		0	1	14%		0	1	14%	
Services	0	0	0%		0	1	2%		0	0	0%		0	1	2%		0	1	5%		0	1	1%	
Formal student status: Fulltime student	0	1	91%		0	1	88%		0	1	49%		0	1	96%		0	1	75%		1	1	100%	
Parttime student	0	1	9%		0	1	12%		0	1	51%		0	1	4%		0	1	25%		0	0	0%	
Access to (digital) tools: Low	0	1	15%		0	1	21%		0	1	12%		0	1	11%		0	1	16%		0	1	7%	
Mid	0	1	41%		0	1	49%		0	1	52%		0	1	53%		0	1	52%		0	1	46%	
High	0	1	43%		0	1	30%		0	1	36%		0	1	36%		0	1	32%		0	1	46%	
Type of degree: Master level	0	1	31%		0	1	17%		0	1	38%		0	1	34%		0	1	36%		0	1	45%	
Other level	0	1	69%		0	1	83%		0	1	62%		0	1	66%		0	1	64%		0	1	55%	

	Iceland (n=2,051)				Ireland (n=12,005)				Malta (n=386)				Netherlands (n=8,144)				Poland (n=8,757)				Austria (n=34,705)			
	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.
Experienced financial difficulty: None	0	1	46%		0	1	38%		0	1	44%		0	1	53%		0	1	43%		0	1	48%	
Mid	0	1	24%		0	1	28%		0	1	33%		0	1	23%		0	1	25%		0	1	26%	
Yes	0	1	30%		0	1	34%		0	1	23%		0	1	24%		0	1	33%		0	1	26%	
Experienced discrimination: yes	0	1	20%		0	1	26%		0	1	17%		0	1	21%		0	1	25%		0	1	28%	
No	0	1	80%		0	1	74%		0	1	83%		0	1	79%		0	1	75%		0	1	72%	
Experienced social safety: Low	0	1	15%		0	1	30%		0	1	19%		0	1	20%		0	1	23%		0	1	17%	
Mid	0	1	26%		0	1	28%		0	1	28%		0	1	34%		0	1	30%		0	1	35%	
High	0	1	60%		0	1	42%		0	1	53%		0	1	46%		0	1	47%		0	1	48%	
Housing situation: living with parents	0	1	27%		0	1	43%		0	1	46%		0	1	37%		0	1	40%		0	1	22%	
Living with partner, children	0	1	53%		0	1	16%		0	1	41%		0	1	13%		0	1	25%		0	1	32%	
Living with others	0	1	7%		0	1	34%		0	1	7%		0	1	35%		0	1	25%		0	1	24%	
Living alone	0	1	13%		0	1	6%		0	1	6%		0	1	14%		0	1	9%		0	1	22%	
Working hours: 0h	0	1	25%		0	1	39%		0	1	26%		0	1	28%		0	1	46%		0	1	31%	
1-20h	0	1	41%		0	1	40%		0	1	22%		0	1	60%		0	1	19%		0	1	44%	
>20h	0	1	35%		0	1	21%		0	1	52%		0	1	12%		0	1	35%		0	1	25%	
Commuting hours: 0-15 min.	0	1	51%		0	1	30%		0	1	29%		0	1	33%		0	1	22%					
16-30 min.	0	1	30%		0	1	25%		0	1	35%		0	1	19%		0	1	32%					
31-60 min.	0	1	15%		0	1	29%		0	1	30%		0	1	24%		0	1	31%					
>1h	0	1	5%		0	1	17%		0	1	5%		0	1	24%		0	1	15%					
Childcare hours: 0h	0	1	69%		0	1	93%		0	1	76%		0	1	98%		0	1	91%		0	1	95%	

	Iceland (n=2,051)				Ireland (n=12,005)				Malta (n=386)				Netherlands (n=8,144)				Poland (n=8,757)				Austria (n=34,705)			
	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.	Min.	Max.	x̄ / %	S.D.
1-39h	0	1	14%		0	1	4%		0	1	17%		0	1	1%		0	1	6%		0	1	3%	
40h or more	0	1	17%		0	1	2%		0	1	8%		0	1	1%		0	1	3%		0	1	3%	
Study hours: 0-19h	0	1	20%		0	1	16%		0	1	35%		0	1	15%		0	1	12%		0	1	23%	
20-29h	0	1	22%		0	1	23%		0	1	20%		0	1	22%		0	1	27%		0	1	24%	
30-40h	0	1	23%		0	1	29%		0	1	17%		0	1	35%		0	1	28%		0	1	25%	
>40h	0	1	35%		0	1	32%		0	1	27%		0	1	28%		0	1	33%		0	1	28%	
National job opportunities (Z-scores)	-3	1	0.0	0.9	-3	1	0.0	0.9	-3	1	0.1	0.9	-3	1	0.0	0.9	-2	1	0.0	0.9				
Don't know	0	1	10%		0	1	11%		0	1	9%		0	1	7%		0	1	9%					
Contact with other students	-3	1	-0.7	1.3	-3	1	-0.5	1.3	-3	1	-0.4	1.1	-3	1	-0.5	1.2	-3	1	-0.4	1.2	-3	1	-0.3	1.2
Teaching scale	-3	1	-0.4	0.9	-3	1	-0.7	1.0	-3	1	-0.6	1.1	-3	1	-0.7	0.8	-3	1	-0.7	1.0	-3	1	-0.7	0.9
Sense of belonging: Low	0	1	30%		0	1	34%		0	1	25%		0	1	24%		0	1	36%		0	1	16%	
Mid	0	1	30%		0	1	30%		0	1	32%		0	1	36%		0	1	29%		0	1	18%	
High	0	1	40%		0	1	36%		0	1	44%		0	1	40%		0	1	35%		0	1	66%	

Source: *EUROSTUDENT 8 micro data (Scientific Use File) (unweighted)*

Regression tables

Table B.1. **Two-level linear regression analyses on well-being: socio-demographic background, academic context and personal study context (11 countries; 74,582 students)**

	M1 Socio-demographic background			M2 Academic context			M3 Personal study context		
	B.	S.E.		B.	S.E.		B.	S.E.	
Intercept	50.03	1.22	***	53.71	1.24	***	57.55	1.18	***
Age: up to aged 17	Ref.			Ref.			Ref.		
Age: 22-24	0.55	0.17	***	0.37	0.18	*	0.58	0.18	***
Age: 25-29	1.59	0.23	***	0.94	0.25	***	1.40	0.25	***
Age: 30 and older	7.21	0.24	***	5.24	0.29	***	4.65	0.30	***
Gender: female	Ref.			Ref.			Ref.		
Gender: male	2.47	0.15	***	3.00	0.16	***	2.68	0.16	***
Gender other	-3.87	1.38	**	-2.31	1.37	*	-1.29	1.34	
Having a disability: no	Ref.			Ref.			Ref.		
Having a disability: yes	-12.53	0.18	***	-11.72	0.18	***	-9.73	0.18	***
Migration background: none	Ref.			Ref.			Ref.		
Migration background: 2nd gen.	-0.88	0.27	***	-0.69	0.27	**	-0.16	0.26	
Migration background: 1st gen.	-0.88	0.39	*	-0.65	0.38	*	0.22	0.38	
Migration background: international	-0.80	0.24	***	-0.50	0.24	*	0.57	0.24	**
Migration background: other	-2.45	0.80	**	-2.27	0.79	**	-1.90	0.78	**
Parental tertiary education: yes	Ref.			Ref.			Ref.		
Parental tertiary education: no	0.51	0.16	***	0.33	0.16	*	0.25	0.16	
Parental tertiary education: don't know	-0.10	0.52		-0.19	0.51		-0.30	0.50	
Parental financial status	3.58	0.09	***	3.05	0.09	***	2.18	0.09	***
Field: business administration				Ref.			Ref.		
Field: education				1.67	0.31	***	1.67	0.30	***
Field: arts and humanities				-0.82	0.27	**	-0.73	0.27	**
Field: social sciences, journalism and information				0.26	0.28		0.05	0.27	
Field: natural sciences, mathematics and statistics				-0.61	0.31	*	-1.01	0.30	***
Field: ICTs				-3.12	0.31	***	-3.64	0.30	***
Field: engineering, manufacturing and construction				-1.75	0.25	***	-1.82	0.25	***
Field: agriculture, forestry, fisheries and veterinary				1.91	0.46	***	1.99	0.45	***
Field: health and welfare				1.01	0.25	***	1.13	0.24	***

	M1 Socio-demographic background			M2 Academic context			M3 Personal study context		
	B.	S.E.		B.	S.E.		B.	S.E.	
Field: services				2.55	0.43	***	2.76	0.42	***
Formal student status: Full-time student				Ref.			Ref.		
Formal student status: Part-time student				1.74	0.26	***	0.60	0.26	*
Access to (digital) tools: high				Ref.			Ref.		
Access to (digital) tools: low				-8.62	0.23	***	-6.49	0.23	***
Access to (digital) tools: mid				-4.72	0.16	***	-4.02	0.16	***
Type of degree: non-master level				Ref.			Ref.		
Type of degree: master level				0.04	0.17		-0.31	0.17	*
Experienced financial difficulty: none							Ref.		
Experienced financial difficulty: mid							-2.89	0.18	***
Experienced financial difficulty: yes							-6.53	0.18	***
Experienced discrimination: no							Ref.		
Experienced discrimination: yes							-2.41	0.19	***
Experienced social safety: high							Ref.		
Experienced social safety: low							-5.29	0.20	***
Experienced social safety: mid							-3.01	0.17	***
Housing: living with parents							Ref.		
Housing: living with partner, children							1.50	0.22	***
Housing: living with others							1.05	0.19	***
Housing: living alone							-0.22	0.25	
Working hours: 0h									
Working hours: 1-20h									
Working hours: >20h									
Commuting hours: 0-15 min.									
Commuting hours: 16-30 min.									
Commuting hours: 31-60 min.									
Commuting hours: >1h									
Childcare hours: 0h									
Childcare hours: 1-39h									
Childcare hours: 40h or more									
Study hours: 30-40h									
Study hours: 0-19h									

	M1 Socio-demographic background			M2 Academic context			M3 Personal study context		
	B.		S.E.	B.		S.E.	B.		S.E.
Study hours: 20-29h									
Study hours: >40h									
National job opportunities (Z-scores)									
National job opportunities: don't know									
Contact with other students									
Teaching scale									
Sense of belonging HE: high									
Sense of belonging HE: low									
Sense of belonging HE: mid									

	B.		S.E.	B.		S.E.	B.		S.E.
-2LL	656289			654293			651347		
Country variance	16.02	4.00	*	16.20	4.03	*	14.45	3.80	*
Student variance	387.99	19.70	***	377.70	19.44	***	363.09	19.06	***
ICC	3.97			4.11			3.83		

Source: *EUROSTUDENT 8 micro data (Scientific Use File)*

Table B.1. **Two-level linear regression analyses on well-being: socio-demographic background, academic context, personal study context, and demands and resources (11 countries; 74,582 students)**

	M4 Study Demands			M5 Study Resources		
	B	S.E		B.	S.E	
Intercept	58.56	1.19	***	62.77	1.03	***
Age: up to aged 21	Ref.			Ref.		
Age: 22-24	0.51	0.18	**	0.45	0.17	**
Age: 25-29	1.38	0.25	***	1.17	0.24	***
Age: 30 and over	4.26	0.33	***	3.06	0.31	***
Gender: female	Ref.			Ref.		
Gender: male	2.65	0.16	***	2.61	0.15	***
Gender other	-1.10	1.34		-0.76	1.27	
Having a disability: no	Ref.			Ref.		
Having a disability: yes	-9.57	0.18	***	-8.20	0.17	***
Migration background: none	Ref.			Ref.		
Migration background: 2nd gen.	-0.15	0.26		0.01	0.25	
Migration background: 1st gen.	0.37	0.38		0.32	0.36	
Migration background: international	0.79	0.24	***	0.97	0.23	***
Migration background: other	-1.90	0.78	**	-1.05	0.73	
Parental tertiary education: yes	Ref.			Ref.		
Parental tertiary education: no	0.25	0.16		0.27	0.15	*
Parental tertiary education: don't know	-0.12	0.50		0.43	0.47	
Parental financial status	2.13	0.09	***	1.73	0.08	***
Field: Business Administration (ref.)	Ref.			Ref.		
Field: Education	1.62	0.30	***	0.46	0.29	
Field: Arts and Humanities	-0.55	0.27	*	-0.94	0.26	***
Field: Social Sciences, Journalism and Information	0.08	0.27		-0.06	0.26	
Field: Natural Sciences, Mathematics and Statistics	-0.68	0.30	*	-0.46	0.29	
Field: ICTs	-3.35	0.30	***	-2.66	0.29	***
Field: Engineering, Manufacturing and Construction	-1.44	0.25	***	-1.30	0.24	***
Field: Agriculture, Forestry, Fisheries and Veterinary	2.28	0.45	***	1.84	0.43	***
Field: Health and Welfare	1.56	0.25	***	0.57	0.24	**
Field: Services	2.80	0.42	***	2.25	0.40	***

	M4 Study Demands			M5 Study Resources		
	B	S.E		B.	S.E	
Formal student status: Full-time student	Ref.			Ref.		
Formal student status: Part-time student	0.48	0.28	*	-0.02	0.27	
Access to (digital) tools: high	Ref.			Ref.		
Access to (digital) tools: low	-6.55	0.23	***	-4.16	0.22	***
Access to (digital) tools: mid	-4.08	0.16	***	-3.07	0.15	***
Type of degree: non-master level	Ref.			Ref.		
Type of degree: master level	-0.20	0.17		-0.72	0.16	***
Experienced financial difficulty: none	Ref.			Ref.		
Experienced financial difficulty: mid	-2.88	0.18	***	-2.05	0.17	***
Experienced financial difficulty: yes	-6.44	0.18	***	-5.02	0.17	***
Experienced discrimination: no	Ref.			Ref.		
Experienced discrimination: yes	-2.31	0.19	***	-0.92	0.18	***
Experienced social safety: high	Ref.			Ref.		
Experienced social safety: low	-5.23	0.20	***	-3.48	0.19	***
Experienced social safety: mid	-2.99	0.17	***	-2.14	0.16	***
Housing: living with parents	Ref.			Ref.		
Housing: living with partner, children	0.83	0.23	***	0.68	0.22	***
Housing: living with others	0.43	0.20	*	0.13	0.19	
Housing: living alone	-0.65	0.26	**	-0.53	0.24	*
Working hours: 0h	Ref.			Ref.		
Working hours: 1-20h	1.76	0.17	***	1.40	0.16	***
Working hours: >20h	0.72	0.22	***	0.88	0.21	***
Commuting hours: 0-15 min.	Ref.			Ref.		
Commuting hours: 16-30 min.	-0.84	0.19	***	-0.50	0.18	**
Commuting hours: 31-60 min.	-1.64	0.20	***	-1.10	0.19	***
Commuting hours: >1h	-2.06	0.23	***	-1.48	0.22	***
Childcare hours: 0h	Ref.			Ref.		
Childcare hours: 1-39h	1.89	0.40	***	0.15	0.38	
Childcare hours: 40h or more	1.92	0.47	***	0.53	0.45	
Study hours: 30-40h	Ref.			Ref.		
Study hours: 0-19h	-1.03	0.22	***	1.02	0.21	***

	M4 Study Demands			M5 Study Resources		
	B	S.E		B.	S.E	
Study hours: 20-29h	-0.24	0.20		0.58	0.19	***
Study hours: >40h	-1.84	0.19	***	-1.99	0.18	***
National job opportunities (Z-scores)				1.92	0.08	***
National job opportunities: don't know				-2.47	0.26	***
Contact with other students				1.50	0.06	***
Teaching quality scale				3.05	0.08	***
Sense of belonging he: high				Ref.		
Sense of belonging he: low				-8.34	0.17	***
Sense of belonging he: mid				-4.24	0.16	***

	B	S.D.		B.	S.D.	
-2LL	650994			642646		
Country variance	14.39	3.79	*	10.46	3.24	*
Student variance	361.37	19.01	***	323.05	17.97	***
ICC	3.83			3.14		

Source: *EUROSTUDENT 8 micro data (Scientific Use File)*