Education as Investment, Consumption or Adapting to Social Norm: Implications for Educational Mismatch among Graduates[1]

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Abstract

Relying on data for Belgian graduates, we investigate the relationship between motives to participate in higher education (investment, educational consumption, student life consumption and social norms) and overeducation after graduation. We also examine whether these motives affect the relationship between overeducation and other outcomes like wages and job satisfaction. Key findings are that individuals motivated by educational consumption are less likely to be overeducated but face a stronger job satisfaction penalty to overeducation. Moreover, those motivated by student life consumption have a higher likelihood of overeducation.

Keywords: educational motives; educational choices; job satisfaction; wages; underemployment; overqualification

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1. Introduction

Over the past decades, an increasing number of individuals enrolled in colleges and universities, resulting in a rising number of labour market entrants holding a higher education qualification (Barro and Lee 2013). A widespread interpretation of this development relies on standard human capital (Becker 1964) or signalling (Spence 1973) models. According to both models, the primary motivation to attend college is to improve future labour market chances. The use of these models is substantiated by the well-established fact that higher educated individuals earn higher wages and have a lower probability of unemployment than lower educated individuals.

However, concerns about potential overinvestment in higher education are raised regularly in the public debate (see, for instance, The Economist 2018). These concerns stem mainly from the observation that a significant number of individuals are employed in jobs below their level of education (Groot and Maassen van den Brink 2000; McGuinness 2006; McGuinness, Bergin and Whelan 2018). This is a reason for concern since overeducated individuals receive lower earnings (Hartog 2000; Rubb 2003) and are less satisfied with their jobs and lives (Allen and van der Velden 2001; Verhaest and Omey 2009; Artes, del Mar Salinas-Jimenez and Salinas-Jimenez 2014) than adequately educated individuals with similar levels of education. Another concern relates to the fact that participation rates in higher education as well as labour market outcomes are not evenly spread amongst the different fields of study. There are significant differences in the risk of being overeducated across graduates from different majors. College graduates who major in Health and Medicine tend to have a lower probability of overeducation than graduates from majors such as Humanities and Arts (Frenette 2004; Verhaest, Sellami and van der Velden 2017). Research also shows that graduates of different fields have different wages, with individuals from majors in Business and Engineering having higher wages than graduates in majors such as Humanities and Arts (Hilmer and Hilmer 2012).

Given that certain qualifications consistently yield a higher likelihood of overeducation, one may wonder why students keep on choosing these programs. A possible explanation rests on the distinction between education conceived of as either an investment or a consumption good (Schaafsma 1976; Kodde and Ritzen 1984; Alstadsæter 2011). Students may get immediate satisfaction from participating in higher education. They may enjoy acquiring knowledge, they may attend college because they dislike working or they may opt for the joys of student life. In each of these cases, the investment effect of participating in higher education on later labour market outcomes would be dominated or blurred, if not annihilated by the satisfaction from consuming education itself. Another explanation why individuals participate in higher education and choose a particular educational field points at the importance of social norms. For many adolescents, going to college or choosing a particular field of study may be self-evident

given the social context in which they grow up. While the role of social norms has long been recognised within sociology (Coleman 1961), their role has only recently attracted serious attention by economists. According to Akerlof and Kranton (2000), one's utility depends on the extent to which one's choices enhance one's self-image, which in turn depends on the social environment. From a private point of view, overeducation should not be deemed problematic in case it results from individuals making well-informed choices taking not just the investment but also the consumption and social norms value of education into account. However, in a context of subsidized education, overeducation would still be socially suboptimal if the associated external benefits to society would be too low.

Several studies have demonstrated that a large part of the return to college is indeed related to the consumption value of education (Carneiro, Hansen and Heckman 2003; Arcidiacono 2004). Recent papers have also confirmed the role of social norms for educational and occupational choices (Falck, Heblich and Luedemann 2012; Favara 2012). However, to the best of our knowledge, no studies have yet looked at the relation between consumption or social norms as motives for participation in higher education and overeducation as a labour market outcome. The specific reasons why and how young people participate in higher education may affect the likelihood to be overeducated through several channels. Firstly, to the extent that students are driven by other than investments motives, it may be rational to choose for programs that increase the risk of overeducation. Secondly, these motives may affect one's study effort and academic performance in terms of degree class, a factor which has been shown to be related to the likelihood to become overeducated as well (Battu, Belfield and Sloane 1999; Büchel and Pollmann-Schult 2004). Finally, different motives are likely to be associated with different labour market aspirations, resulting in differences in occupational choices and, hence, differences in one's willingness to accept job offers (not) matching one's education. Moreover, apart from affecting one's likelihood to be overeducated, these differences in aspirations may also affect the impact that overeducation has on monetary and non-monetary outcomes.

In this paper, we investigate, for a sample of graduates to what extent the likelihood to be overeducated differs depending on four motives (investment, educational consumption, student life consumption, social norms) for participation in higher education. We also explore whether this relationship is driven by selection into different programs and differences in academic performance. Finally, we investigate whether the penalty to overeducation in terms of wages and job satisfaction differs depending on these motives. For this analysis, we rely on representative panel data documenting the transition from higher education to work in Belgium.

The paper is structured as follows. Next, we present our conceptual framework and review the literature. Thereafter, we outline the data, methods and results. We end with a discussion and some general conclusions.

2. Conceptual Framework and Literature Review

There exists a vast literature on the factors influencing the choices of young people when entering tertiary education. In this paper we add to this literature by investigating whether young people's educational motives account for the match between their education and job. The background of this question is the widely documented fact that young people keep choosing educational programs with a high(er) probability of directing them to jobs for which they are overeducated. To study this question, we relate various motives for participating in higher education to labour market outcomes.

<here Figure 1>

Figure 1 summarizes our conceptual framework on how overeducation and its consequences in terms of wages and job satisfaction may be related to the educational motives, with the black boxes and arrows representing relationships that are directly tested in this paper and the grey boxes and arrows representing variables and relationships being tested only indirectly. We expect educational motives to relate to the likelihood of being overeducated through three channels. Firstly, they are likely to affect the academic choices in terms of the level of the degree and the field of study (Figure 1, Arrow 1). Secondly, we expect motives to be related to study effort, which is likely to affect academic performance outcomes such as the degree class with which the individual graduates or the extent of grade retention (Figure 1, Arrow 2). Thirdly, we expect them to be related to job search and job choice behaviour (Figure 1, Arrow 3). In addition, we presume different motives to translate in different penalties of overeducation on wages and job satisfaction (Figure 1, Arrow 4). Below, we discuss these relationships in more detail based on insights from the literature.

2.1 Educational motives

We conceive of educational motives as driven primarily by general preferences and attitudes. Some individuals are likely to engage in activities because they are relatively more materialistic, others rather participate because they are more susceptible to social norms or because they realise direct utility from participating in these activities. These different attitudes are potential sources of motivations to attend college. We use an economic approach and distinguish between investment, consumption and social norms as educational motives. Within consumption motives, we

further distinguish between educational consumption and student life consumption[6]. Basically, we thus expect educational motives to be driven by these general preferences. While we will leave aside whether these general preferences and attitudes are fixed or malleable, we presume that how they translate into dominant motives for participation in higher education partly depends on the institutional, economic and social context. For instance, in a context of high tuition fees and low subsidisation, one may expect the investment motive to be relatively more important. We will turn back to this in the conclusion section.

In the economics literature, the dominant framework explaining the decision to participate in education is human capital theory (Becker 1964). Education is supposed to enhance future productivity. Hence, participation in education can be conceived of as an investment decision. If discounted benefits of higher education outweigh discounted costs, individuals will decide to participate in higher education. Many studies empirically corroborate this theory. Freeman (1971) and Berger (1988) found that, to the extent that they are aware of earnings differentials, students choose the type of education offering the greatest total expected utility. Also Montmarquette, Cannings and Mahseredjian (2002) found that expected earnings are essential for the choice of a college major. Duchesne and Nonneman (1998) found a positive effect of the wage differential between college and non–college occupations in the local labour market on the student's probability of attending higher education. Fuller et al. (1982) showed that investment in education is likely to be higher when the costs of education are lower. A rival explanation for choosing to participate in higher education is the signalling theory (Spence 1973). Instead of education, innate ability is assumed to be the key determinant of future productivity. High ability students can signal their future productivity by education more cheaply than others so that employers can use educational attainment as a filter.

Both human capital theory and signalling theory conceive of choosing for higher education as an investment. Yet, other motives may also affect the decision to attend higher education. Students may decide to continue education because they like the courses, enjoy learning new things, like to participate in student life or would like to have an enjoyable job in the future (Alstadsæter, Kolm and Larsen 2008; Alstadsæter 2011). These individuals enjoy other types of returns than the pecuniary returns and may well choose fields of study with lower wage returns, such as Humanities or Arts. If so, attending college would be affected by consumption motives. The consumption value of

[6] Also psychologists have extensively focused on the associations between motivations and behaviours or other outcomes. Central within this literature is the distinction between controlled and autonomous motivation (Ryan and Deci 2000; Vansteenkiste and Lens 2006). Controlled motivation refers to doing something because of pressure by external or internal forces. Autonomous motivation refers to doing something because it is inherently interesting or because it is personally important (Vansteenkiste and Lens 2006). Within this categorization, investment motives and social norms are thus conceived as controlled motivation, while consumption motives are rather conceived as autonomous motivation.

education has attracted increased attention during the past decades (Schaafsma 1976; Kodde and Ritzen 1988; Gullason 1989; Duchesne and Nonneman 1998; Alstadsæter 2011). Kodde and Ritzen (1988) were amongst the first to extend the human capital framework with consumption motives. According to their model, individuals choose the optimal bundle of education, current and future consumption, given their time and budget constraints. Empirical evidence supports that consumption motives matter for educational choices. Arcidiacono (2004) found that the choice of graduates depends on preferences for studying particular majors in college. Also Carneiro et al. (2003) maintain that large part of the return to college is non-pecuniary. In our analysis, we distinguish between educational consumption and student life consumption. Educational consumption is defined as participating in education because acquiring knowledge and learning new things delivers direct utility. Student life consumption refers to individuals participating in education because they dislike working, because it delivers them the opportunity to participate in extracurricular student life or because it delivers them the opportunity to share time with friends.

Finally, social norms may also determine educational choices. Sociologists such as Coleman (1961) consider the social context as a potentially useful resource for rational actors to achieve their goals. To succeed individuals have to understand and adopt the norms and standards from the social category where they belong to. Also in the economics literature, there is a growing attention for the role of the social norms to explain behaviour. Akerlof and Kranton (2000) claim that an individual's identity is associated with the social environment and that individuals gain utility if their behaviour matches the ideal of the social category to which they belong. They claim that these norms attached to each social category are socially determined. If individuals do not fit the ideal behaviour of their social category, for instance in terms of educational and occupational choices, this causes a loss of utility.

2.2 Academic choices

Overeducation is likely to be related to each of the educational motives through their influence on the choice of degree and college major. Several studies have shown that, to the extent that students are aware of and respond to wage differentials, they will choose the type of education that has significant monetary returns. Hilmer and Hilmer (2012), for instance, found that students citing the importance of financial well-being are more likely to choose for a major in Business and Engineering and that these individuals have higher wages. Arcidiacono (2004) reports similar results. As already mentioned, overeducated individuals are found to realize a lower return to education. Hence, individuals participating in higher education motivated by investment may be less likely to choose for programs with high risks of being overeducated.

Not all college majors may be chosen because of pecuniary returns. Alstadsæter et al. (2008) report that many individuals choose educational tracks, such as a major in Humanities, Arts or Theology, that lead to jobs with relatively low wages and higher unemployment. These college majors are also often found to have a higher likelihood of overeducation (McGuinness 2003; Frenette 2004; Verhaest et al. 2017). Apparently, these programs have, on average, a relatively high consumption value, resulting in higher participation rates and lower wages than would be the case if decisions were solely based on future labour market outcomes. This higher consumption value may be related to both educational and student life consumption. The content of these majors may be assessed to be relatively more exiting and thus may attract students who participate in higher education because of educational consumption. The content may also require less effort to master, thus attracting students who attend college primarily because of the associated student life. If so, one expects students participating in higher education because of educational or student life consumption more likely to opt for programs associated with a high risk of being overeducated.

With respect to social norms, only a few studies investigate whether identity affects educational choices. Favara (2012), for instance, shows that boys and girls choose according to their own gender stereotype. Based on this evidence, we expect that individuals with highly educated parents try to achieve a level of education as high as possible. Regarding the choice of field of study, they may choose the one that matches the ideal of their social category. In a family of doctors, for instance, it may be considered obvious that the children also become doctors. However, for others, it may just as well be a norm to become a social worker or an artist. Therefore, it is not a-priori clear whether individuals motivated by social norms will, on average, be more or less likely to choose for programs associated with more overeducation.

2.3 Study effort and academic performance

Several studies found that overeducation is lower among graduates who obtained a higher degree class and those without grade retention (Battu et al. 1999; Dolton and Silles 2003; Büchel and Pollmann-Schult 2004; Verhaest and Omey 2010). Hence, to the extent that educational motives affect study effort and, hence, academic outcomes, overeducation will also be related to the motives through this channel. The expected relationship between the investment motive and academic outcomes in terms of degree class and grade retention is ambiguous. Individuals motivated by investment can be expected to weigh also costs and benefits of effort associated with achieving a high degree class grades and avoiding grade retention. Hence, they will only put in the additional effort for a higher degree class, when benefits of academic performance in terms of improved labour market chances outweigh the cost of additional effort.

One may also presume that individuals with an educational consumption motive obtain a higher degree class, simply because they enjoy studying and learning things related to the topic of their major[7]. Graduates with a student life consumption motive, meanwhile, may be more interested in being part of the student environment than in studying, resulting in a lower degree class and a higher likelihood on grade retention.

Finally, the relationship between academic performance and adapting to social norms as motive for participating in higher education is theoretically ambiguous. For some social categories, it might be important to obtain a high degree class and to graduate without grade retention, whereas for other categories this might not be a norm at all.

2.4 Job search and job choice behaviour

We expect the likelihood of overeducation to be related with the educational motives even after accounting for differences in academic choices and achievements, amongst others through their impact on job search and job choice behaviour. It seems likely that those who attend college because of investment are less likely to search for and accept jobs for which they are overeducated. To secure the return on their investment, they are likely to prefer jobs matching their educational level since these jobs pay higher wages.

Individuals motivated by educational consumption attend college because they are willing to learn new things and/or because they have a strong interest in the topic of their education. Hence, one may expect these individuals not only to be willing to achieve these goals through education, but also through their jobs. Since jobs that match with one's education are also likely to be jobs that match one's general personal interests, we thus expect individuals motivated by educational consumption to be also less likely to accept jobs for which they are overeducated. This effect may be reinforced if employers perceive these individuals to be more motivated than others. Alternatively, individuals who just attend college because of the attractions of student life may be less career-oriented and to attach less importance to the match between their education and their jobs. They may also be perceived by employers to be less motivated.

Finally, the relationship between job search behaviour and the social norm motive is not a priori clear. On the one hand, it may be a social norm to get a high-status job and, hence, a job for which one is less likely to be overeducated. On the other hand, the norm with respect to employment may be rather related to a type of occupation or to a sector than to the level of the job.

[7] In line with this, psychological studies find that autonomous motivation is associated with better academic performance (Soenens and Vansteenkiste 2005).

2.5 Overeducation

Based on the abovementioned considerations, we expect several overall relationships between the motives and over-education. We expect individuals having participated in higher education because of investment to be less likely to be overeducated. These individuals are expected to search for a job matching their educational level and to choose programs with a lower likelihood of overeducation. Individuals having participated in higher education because of student life consumption are expected to have a higher likelihood to be overeducated, because of choosing programs associated with higher degrees of overeducation, because of their lower quality of human capital as a consequence of less study effort, and because of being less career–oriented. For educational consumption and social norms, mean-while, the expected direction of the relationship with overeducation is not a-priori clear.

2.6 Wages and job satisfaction

Differences in educational motives may also moderate the relationship between overeducation and other outcome variables. It is well known that overeducated individuals earn less than adequately educated individuals with similar levels of education (Hartog 2000). Moreover, several studies conclude that overeducated individuals are less satisfied with their job than adequately educated individuals with similar levels of education (Allen and van der Velden 2001; Verhaest and Omey 2009). In particular with respect to the job satisfaction penalty to overeducation, one may expect the educational motives to matter. If individuals participating because of investment or educational consumption indeed aim at avoiding overeducation when looking for jobs, one may expect them to face a stronger job satisfaction penalty in case they do not manage to do so[8]. Similarly, those motivated by student-life considerations, which are expected to care less about their job match, may experience less reduction in job satisfaction if overeducated.

3. Data and Methodology

3.1 Data

For our analysis, we use the so-called SONAR data. These data contain information on the transition from education to work for three cohorts of about 3000 Flemish (Belgian) youngsters, born in 1976, 1978 or 1980. For each cohort

[8] One may argue that overeducation may be a source of satisfaction for those being motivated by investment if it allows them to avoid unemployment. However, we compare the job satisfaction of overeducated workers with their satisfaction in case of adequately employment only and not with their satisfaction in the case of unemployment.

data is available at the age of 23. Follow–up surveys were conducted at age of 26 for the 1976 and 1978 cohorts. The 1976 and 1980 cohorts were also interviewed at the age of 29. We construct a panel data-set containing information for the following four time points: (i) start of the first job, (ii) at age 23, (iii) at age 26 and (iii) at age 29[9]. Information such as net wages, job satisfaction and the mismatch status is in general available for each of these four time points. An exception is the situation at age 23 for the 1976 cohort, for which information on wages and job satisfaction is not available for those who were still in their first job at that time. Another exception is the information on these two variables at age 23, 26 and 29 in the specific case when individuals were, at that time, for less than one year employed in their first job. Observations with missing information, observations on self–employed jobs, observations with extreme values for wages (cf. infra), respondents with only one observation, and respondents with a change in their level of education or field of study between two observation points are excluded. Keeping only those with a higher education degree leaves a sample of 2612 individuals and 6583 observations.

3.2 Educational motives

To measure the educational motives, we use a list of items in the survey at age 23 regarding the reasons to attend higher education. Respondents got the following question: 'Why did you attend higher education?' The interviewer provided a list of ten possible reasons. Using a four-point scale, respondents could indicate the degree of applicability of each of these reasons in their case. To identify the motives, we used principal component analysis (with varimax rotation) and measured the alternative motives on the basis of factor scores. We opted to extract four factors corresponding to the educational motives on which we formulated explicit hypothesis. In table 1, the factor loadings of the different items[10] are shown. The first factor loads on the following three items: 'Because the subject of the program interested me', 'Because I wanted to work further on my self-development' and 'Because I enjoy studying'. The percentages of the individuals that rather or completely agreed on these items were 80.0%, 78.3% and 59.4% respectively. The factor on these three items is used as a proxy for 'educational consumption'. The second factor is rather a proxy for 'investment' and is based on the items 'In order to earn a higher wage' (on which 60.3 % of the respondents agreed) and 'To have a higher chance on having a good job later' (78.5% agreed). The third factor measures 'social norms' and consists of two items: 'Because my parents/family expected that' (46.4%) and 'It was obvious that I would continue my education' (66.2%). Finally, a last factor loads on items such as 'Because most of

[9] For individuals without jobs at the time of the interview (at age 23, 26 or 29), information refers to the end of their last job.

[10] A tenth item, not listed in the table, was 'to practice the occupation of my own choice'. In a first factor analysis, this item had more than one factor loading. Since the item both refers to future labour market perspectives and to the individuals' specific interests, it seems to be related to both investment and consumption motives. Therefore, the item was excluded from the analysis.

my classmates/friends also attended higher education' (30.0%) and 'Because I did not yet want to go working' (50%), and is used as proxy for student life consumption.

<here Table 1>

3.3 Overeducation

In a first analysis, we investigate how the aforementioned motives predict one's likelihood to be overeducated. For the measurement of overeducation, we rely on two different measures. The measure that is used in our benchmark analysis is based on job analysis (JA) and derived from the Standard Occupation Classification of Statistics Netherlands. This classification consists of five-digit occupational codes which are grouped into five functional levels: less than lower secondary (<LS), lower secondary (LS), higher secondary (HS), lower tertiary (LT) and higher tertiary education (HT). An individual is defined as overeducated (*OVER*=1) if the educational level exceeds the functional level. To account for differences in the degree of overeducation in the wage and job satisfaction analysis, we rely on years of overeducation (*YOVER*). These years are computed by years of attained education minus years of required education for overeducated individuals and set to zero for other workers. Years of required education are defined by the minimal years of education that are needed to achieve the corresponding educational level: < LS = 6 years, LS = 10 years, HS = 12 years, LT = 15 years and HT = 16 years.

Using job analysis to measure overeducation has both advantages and disadvantages. A first advantage is that this method reflects the concept of overeducation used in the literature, i.e. a situation in which the attained level of education exceeds the level required to do the job (Hartog 2000). Second, this approach is not prone to social desirability bias and is based on uniform coding instructions. Third, spurious correlation between overeducation and subjective variables such as educational motives and job satisfaction, resulting from common-method bias, is avoided. A critique is that job analysis may overestimate overeducation if the underlying classification is not regularly updated to account for increases in requirements over time. Given this critique, we also rely on a second measure of overeducation. Regarding their first job, respondents from the 1978 and 1980 cohorts were asked: "What is (was), according to your own opinion, the most appropriate educational level to execute your job?" A question like this is typically used in the literature to construct a worker-assessed (WA) measure of overeducation. However, in the SONAR survey, this question is not available for all jobs. Therefore, we use a modified approach (cf. Baert et al. 2013). First, relying on the information regarding first jobs, we computed the median worker-assessed required level of education within each occupation. Second, this median level was used to define the worker-assessed level of required education

for an occupation. Third, relying on this definition, we assessed for every job whether an individual was overeducated or not. According to the JA method, 52% of the sample is overeducated at the start of the career (Appendix, Table A). This incidence is larger than for observations at the age of 23 (44%), 26 (42%) and 29 (45%). Based on the modified subjective measure we note lower incidences of mismatch. At the start of the career about 36% was over-educated according to this measure. For observations at later ages, incidences range from 27% to 32%.

To assess the relationship between the motives and the likelihood of being overeducated, we estimate random-effects logit models. Note that, while the random effects estimator accounts for the panel nature of our data, it does not allow to control for unobserved determinants of overeducation that are correlated with the educational motives. Therefore, the estimates based on these models should be interpreted as conditional correlations rather than strict causal relationships.

3.4 Academic choices and performance

Our second research question is whether the overall relationship between the motives and overeducation is explained by selection into different programs and differences in academic performance (cf. Figure 1, black lines 1 and 2). The program choice with respect to higher education in Flanders comes down to a double choice: the level of the program and the field of study. Regarding the level of the program, individuals in our sample could, at the time they entered higher education, choose between a short-term lower tertiary education at a college and a long-term higher tertiary education program at a college or university. These programs are equivalent to contemporary bachelor and master programs respectively. While many students nowadays use a college degree as stepping stone to a university degree, this was far less the case at the time our sample entered higher education. In general, those opting to get a higher tertiary degree immediately started in a long-term program. Similarly, while individuals got a short-term degree after two years of university, few students did not proceed with their program to get their long-term degree. In our sample, 37.2% of the individuals have attained a higher tertiary education (i.e. master) degree. Students also have to choose their educational field. We distinguish between the following seven fields: (1) Linguistics, history and philosophy (5.6%), (2) Economics, business, and law (30.3%), (3) Behavioural and social sciences (11.8%), (4) Health and (para)medicine (12.7%), (5) Natural sciences and engineering (20.9%), (6) Arts (2.2%), and (7) Education (16.5%).

For the measurement of academic performance, we use two variables, namely degree class in the final year and grade retention in higher education. Both variables are found to be associated with overeducation in Flanders, with those having a lower degree class and those with more grade retention being more likely to be overeducated in first jobs (Verhaest and Omey 2010). With respect to degree class, we distinguish three categories: (1) graduating without

distinction (49.9% of the sample), (2) graduating with a distinction grade (40.5%), and (3) graduating with high or highest distinction grade (9.6%). Grade retention is measured in terms of the number of repeated years during tertiary education.

To assess whether the overall relationship between the educational motives and overeducation is driven by selection into different programs and differences in academic performance, we conduct estimates on the likelihood to be over-educated both without and with these variables as controls. We also explore more in detail how academic choices and performance matter by means of a number of complementary analyses in which we regress the academic choice and performance variables on the educational motives. To this end, we conduct binary logit (level of the program) multinomial logit (field of study)[11], poisson (degree of grade retention) and ordered probit (degree class) regressions.

3.5 Wages and Job Satisfaction

Finally, we investigate how the motives moderate the relationship between overeducation, and wages and job satisfaction (cf. Figure 1, black line 4). For wages, we use data on net hourly wages. The survey question on wages differs across waves and cohorts. For the initial interview (at the age of 23), of the 1976 cohort official net monthly wages were reported in intervals of 124 euro (BEF5000) for lower wages and intervals of 248 euro (BEF10000) for higher wages. In the other surveys, respondents were asked to report their exact net monthly wage. When refusing to provide an answer, they got the interval question. We use the midpoint of the interval for these observations, convert all answers to hourly wages and deflate them on the basis of the consumer price index used for wage indexation[12]. Job satisfaction is derived from the following survey question: 'During the early phase of your first job, how satisfied were you with your job?' For the job at the age of 23, 26 and 29 a similar question was posed. Respondents had to answer on a five-point Likert scale. Summary statistics on both labour market outcomes are reported in the Appendix (Table A).

For both labour market outcomes, random-effects linear regression models are estimated, with the log of hourly wages and job satisfaction being regressed on the motives, overeducation, interaction effects between the motives and overeducation, and a number of control variables. Previous research on the effects of overeducation on earnings has shown that estimates may be biased because of measurement error in overeducation and because of confounding

[11] Multinomial logit model estimates may be biased in case of violation of the independence of irrelevant alternatives (IIA) assumption. To assess whether this is an issue, we ran a series of supplementary multinomial logit models in which, each time, the individuals who chose for a particular alternative were deleted. The conclusions based on each these supplementary estimations were largely similar to those based on the model that includes all alternatives.

[12] Extreme values (two standard deviations above or below the average log) were excluded.

worker characteristics (Dolton and Silles 2008; Iriondo and Pérez-Amaral, 2016; Sellami et al. 2017). To tackle the problem of random measurement error, we use the second overeducation measure as instrumental variable for the first one (and the other way around)[13]. To tackle the second type of bias, we estimate random-effects models including additional Mundlak correction terms (Mundlak 1978). Within this approach, individual means of all the time-varying variables are included as additional controls. These means capture the potential correlation between the confounding time-invariant worker characteristics and the time-varying explanatory variables. As opposed to fixed-effects models, Mundlak correction models allow to keep time-invariant variables, such as educational motives, as regressors in the model. Note, however, that the coefficients of these time-invariant variables cannot be given any causal interpretation. Therefore, while our procedure allows us to reduce the bias in the estimated (monetary and non-monetary) returns to overeducation and to gauge whether these (less-biased) estimates are heterogeneous across profiles with different educational motives, it does not allow one to assess the causal effect of the motives on these returns. Finally, like in standard fixed-effects panel data models, time-varying confounding factors cannot be accounted for.

3.6 Control variables

Along with the variables measuring academic choices and performance, we also include several other control variables in our models. In each analysis, we include dummies for gender (1 dummy), non-European descent (1), having a child (1), cohabiting (1), and educational attainment of both parents (8). Parental education is often used as proxy for household income and because of its influence on individuals' decisions to attend higher education. As proxies for ability, we include the study track and study results in secondary education. Further, to account for changes in average job quality with age, we include three dummies for whether the observation is made in at age 23, 26 or 29. Moreover, we include years of work experience and its square. To account for differences in preferences and labour market conditions, several other control variables are included in the wage and job satisfaction analysis: firm size (4), sector of employment (12), public sector (1), shift work (2) and night work (2). Finally, in all models, the year of observation is included to account for time trends.

4. Results

[13] For a detailed discussion on this approach to tackle random measurement error in overeducation, see Robst (1994), Dolton and Silles (2008) and Sellami et al. (2017).

4.1 Overeducation

In table 2, we report the estimation results on the likelihood to be overeducated if measured on the basis of job analysis. To assess the overall relationship between the educational motives and overeducation, we first estimate a model without controls for variables measuring academic choices and performance (Table 2, column 1). In line with expectations, we find the likelihood to be overeducated to be significantly related to one's motives for participation in higher education. As expected, individuals who participated in higher education because of student life consumption have a higher probability to be overeducated. Participating in higher education because of educational consumption, meanwhile, is negatively associated with the likelihood to be overeducated, probably because they are more eager to find a matching job or because their study effort is higher. Also regarding the social norms motive, the association is negative, although the relationship is only loosely statistically significant. Finally, while we expected that individuals participating in higher education because of investment are less likely to be overeducated, our results point to a relationship in the opposite direction.

<here Table 2>

To investigate whether these differences in likelihood to be overeducated are driven by selection into different programs and differences in academic performance, we control in a second specification for academic degree (master versus bachelor), field of study, degree class and years of grade repetition (Table 2, column 2). In line with the literature, we find most of these variables to be significant predictors of the likelihood to be overeducated. Regarding the level of the program, lower tertiary degrees are found to be associated with considerably lower overeducation incidences. With respect to the field of study, programs within the domains of 'Education' and 'Health and (para)medicine' are associated with low incidences of overeducation on the basis of both measures. Students within the domains of 'Arts' and, to a lesser extent, the domains 'Economics, business and law' have a relatively higher incidence of overeducation. Somewhat in between for this measure are the domains of 'Behavioral and social sciences', 'Linguistics, history and philosophy', and 'Natural sciences and engineering'. While the rather moderate performance of the 'Natural sciences and engineering' fields of study in terms of avoiding being overeducated may sound surprising, this has also been observed in other studies relying on data for a more broader set of countries (Verhaest et al. 2017).

The addition of these variables measuring academic choices and performance strongly reduces the estimated association between the educational motives and the likelihood to be overeducated. Regarding the investment and social

norms motives, this association is no longer statistically significant. Moreover, the estimated associations with respect to the two consumption motives are more than halved. This suggests that a substantial part of the variation in the likelihood to be overeducated between individuals with different motives is driven by selection into different programs and differences in study effort. Still, the coefficients on the two consumption motives remain statistically significant, suggesting that part of their overall association with the likelihood to be overeducated is also attributed to differences in job search and job choice behaviour (cf. Figure 1, black line 3). Indeed, the remaining positive association with respect to educational consumption is consistent with these individual being more eager to find a matching job, while the remaining negative association with respect to student life consumption points to behaviour in the opposite direction.

In the Appendix (Table B), we also report estimates relying on the worker assessment measure for overeducation. The results are relatively similar to those relying on job analysis, although the coefficients for the investment and social norm motives are statistically insignificant in both model specifications. In addition, these estimates suggest differences in academic choices and study effort to matter with respect to the overall relationship between overeducation and the student life consumption motive only.

4.2 Academic choices and performance

To explore more in detail how academic choices and performance matters, we also conduct some additional analyses in which we regress the academic choice and performance variables on the educational motives (Table 3 and 4).

<here table 3>

Regarding academic choices, we expected to find that investment motivated individuals are more likely to choose for programs with low risks of overeducation, while the opposite was expected for those driven by the consumption motives. Regarding the level of the program (Table 3, Column 1), we indeed find that investment motivated individuals are less likely to choose for master's programs, contrary to consumption or social norms driven individuals. The results regarding field of study are less clear (Table 3, Column 2). We find that investment driven individuals are less likely to participate in 'Arts', 'Linguistics, history and philosophy', and 'Behavioral and social sciences', which are domains that are associated with a relatively high or moderate levels of overeducation. On the other hand, these individuals are somehow more likely to choose for 'Health and (para)medicine', which is a domains that is associated with a low likelihood of overeducation. However, these individuals are above all more likely to choose the domain 'Economics, business and law', which is in Flanders a major with a relatively high likelihood of overeducation. Also

the results with respect to the relationship between field of study choice and the consumption motives are only partly in line with our expectations. As expected, educational consumption motivated individuals are somewhat less likely to choose for 'Health and (para)medicine' and more likely to choose for the domain of 'Arts' and 'Linguistics, history and philosophy'. Again the 'Economics, business and law' is an exception since educational consumption driven individuals are less likely to choose for this domain despite being associated with a relatively high likelihood to be overeducated. Alternatively, regarding the student life consumption motive, the results for 'Economics, business and law' are in line with our hypothesis just like those for 'Health and (para)medine' and 'Education'. But in this case, the domain of 'Arts' is an exception with a low likelihood to be chosen among individuals participating because of this motive, despite this domain being associated with a relatively high degree of overeducation. Finally, individuals having participated in higher education because of social norms are also less likely to choose for Arts as field of study[14]. Otherwise, they more often choose for a program within the domain of 'Education'.

Regarding academic performance, we anticipated a relationship with the motives because they may be associated with differences in study effort. In particular, we expected those motivated by educational consumption to exert more study effort, as opposed to those motivated by student life consumption. Consistent with this expectation, the former individuals are less likely to repeat years in higher education and more likely to have a high degree class (Table 4). However, we do not find evidence for the latter individuals to perform lower on these academic outcomes. Finally, we also find that investment driven individuals are less likely to have a high degree class.

<here table 4>

4.3 Wages and job satisfaction

We end with looking at whether the association between overeducation and wages or job satisfaction varies between individuals with different educational motives. In table 5, we report the results on our benchmark measure of over-education. In line with the literature, we find that overeducated workers earn less and are less satisfied with their jobs than adequately qualified individuals that have the same level of education. Interestingly, we also find that adequately educated workers driven by educational consumption realize a wage and job satisfaction bonus, while those being motivated by student life consumption face a job satisfaction penalty.

[14] While the coefficient of social norms on the difference in likelihood between 'Arts' and the reference category is statistically insignificant in Table 4, additional estimates reveal those motivated by social norms to be significantly more likely to choose for 'Arts' than for other fields in general ($p<0.10$) and for the fields of 'Education' ($p<0.01$) and 'Natural sciences & engineering' ($p<0.10$) in particular.

To assess whether the association between overeducation and the two other outcome variables depends on the motives, we added interaction terms between overeducation and the four motives. We find that overeducated individuals who have participated in higher education because of educational consumption face stronger job satisfaction and wage penalties than other overeducated workers. However, the additional penalties for one year of overeducation are smaller than the autonomous positive effects of educational consumption on job satisfaction and wages. Hence, moderately overeducated workers who participated in higher education because of educational consumption remain at least as satisfied with their jobs and earn at least as much as other moderately overeducated workers. Regarding the other motives, we only do find significant interactions with overeducation in the wage analysis, with both those being motivated by investment and those being motivated by social norms facing a stronger negative overeducation penalties.

The results with respect to job satisfaction are largely similar when relying on worker assessment as alternative overeducation measure (Appendix, Table C). Also on the basis of this measure, we find the association between overeducation and job satisfaction to be stronger for individuals motivated by educational consumption. The results with respect to wages, meanwhile, are less robust across our measures of overeducation. On the basis of the alternative overeducation measure, we reach similar results for individuals who have attained higher education because of social norms. However, this measure does not deliver a significantly negative interaction term for overeducated individuals having participated in higher education because of educational consumption or investment.

<here Table 5>

5. Discussion

We investigated whether the likelihood to be overeducated among higher education graduates is related to their motive (investment, educational consumption, student life consumption or adhering to social norms) to participate in higher education. We also explored whether this relationship is driven by selection into different programs and differences in academic performance. Finally, we looked at whether the educational motives moderate the relationship between overeducation and other outcomes like wages and job satisfaction.

Our results clearly point to differences in the likelihood to be overeducated between individuals with different educational motives. First of all, we found some limited evidence that individuals motivated by investment reasons are

more likely to be overeducated. Our analyses suggest this unanticipated result to be attributed to two different mechanisms. First, individuals participating in higher education because of investment are less likely to have obtained a high degree class. A possible explanation is that these individuals are only willing to invest a certain amount of effort to get a higher degree class. Although a high degree class may increase labour market chances and reduce one's likelihood to be overeducated, these graduates may feel the game is not worth the candle. Second, and more importantly, these individuals choose, above all, for a program within the domain of 'Economics, business and law'. In Flanders, this domain typically has a relatively higher degree of overeducation. Also other studies found that individuals motivated by investment more often choose for this domain, most likely because it is associated with relatively high earnings irrespective of the match quality. Our detailed estimation results regarding the determinants of wages[15] indeed indicate that those who choose for this domain have relatively high wages. A potential explanation for the relatively higher likelihood to be overeducated in combination with relatively high wages within this domain is provided by Van der Meer and Wielers (1996). They claim that employers in the financial or professional service sector prefer overeducated workers because educational credentials serve as a legitimation to their clients of the quality of the provided service.

Next, our study confirms an overall positive relationship between overeducation and the student life consumption motive. This seems to be explained both by differences in academic choices and differences in job search and job choice behaviour. First of all, individuals motivated by student life consumption opt less often for programs that are associated with a low likelihood to be overeducated, such as programs in the domain of 'Health and (para-)medicine'. The latter are generally perceived to be more difficult domains, supporting the idea that they are less likely to be chosen by individuals avoiding studies with high effort costs. Second, we found individuals motivated by student life consumption also more likely to be overeducated than differently motivated graduates with similar academic choices and academic achievements. This finding was expected and is consistent with these individuals being less career-oriented and therefore less concerned about their future jobs.

Third, individuals motived by educational consumption were found less likely to be overeducated. Several, sometimes counteracting effects seem to explain this relationship. While they are more likely to choose for Master's programs which are associated with a higher probability of overeducation, individuals motivated by educational consumption obtain more often a high degree class playing a positive role in the selection process. In addition, given their academic choices and performance, they are more likely to find jobs that match their level of education. The

[15] These estimates are available upon request.

latter finding was expected since, for these individuals, a job that matches their education is also likely to be a job that matches with their preferences. Moreover, adequate jobs are also likely to be more successful in terms of self-development, something individuals who participate in higher education because of educational consumption are also likely to find important. A last explanation may be that employers are more likely to select these individuals because they appear to be highly motivated.

Fourth, our results indicated that individuals driven by social norms are also somewhat less likely to be overeducated, although the association was only statistically significant at the 10% level and did not hold when using an alternative overeducation indicator based on worker assessments. This result seems to be attributed solely to being selected into particular programs. On the one hand, these individuals were found to participate more often in master's programs, which are associated with higher risks of overeducation. Probably, this higher participation in master's programs is due to the fact that master's programs are perceived to have a higher social status. On the other hand, they choose more often for a program within the domain of Education and less often for a program within the domain of Arts, the former being associated with low, the latter with high chances of overeducation.

Along with the risks of being overeducated, we also found the association between overeducation and other outcomes, like wages and job satisfaction, to be associated with why one participated in higher education. Interestingly, individuals participating in higher education because of educational consumption are found to face stronger job satisfaction and wage penalties to overeducation than those motivated differently. The job satisfaction finding provides further support for the idea that these individuals have a strong aversion towards jobs not matching their education. Nevertheless, for moderately overeducated workers, these stronger penalties in terms of wages and job satisfaction are compensated by the positive autonomous association of being motivated by educational consumption with wages and job satisfaction. This suggests that, in the case of matching jobs, graduates motivated by educational consumption are relatively more productive. Since it can be expected that these graduates are more intrinsically motivated for these jobs than other graduates, this may not sound surprising. Surprisingly, we also found individuals participating in higher education because of social norms to have a higher wage penalty to overeducation. A possible explanation is that their failure to find a job matching their educational level incites them to accept a job matching their field of study but requiring less education than the attained level, avoiding in this way at least a loss of their social category's self-image.

Whereas, overall, our results regarding the two consumption motives were largely in line with expectations, this was not the case with respect to the investment motive. The difference is partly due to the relatively higher participation

of investment motivated graduates in programs related to Economics, business and law. A potential explanation is that they do not take only overeducation but also earnings risk into account. To check this we performed a number of additional analyses[16]. First, we estimated a reduced form wage equation that excludes overeducation and firm characteristics as independent variables. In this model, the coefficients on the fields of study resemble a more overall relationship with wages, also taking into account their indirect association with wages through overeducation and because they may determine access to firms paying higher wages. These estimates corroborate that, despite resulting in a higher likelihood to be overeducated, the domain 'Economics, business and law' is associated with relatively high wages (only those within the Health domain seem to earn more). Second, to test whether those who participate in higher education motivated by investment choose a field of study that effectively translates in higher wages despite being associated with higher incidences of overeducation, we estimated a model that also excludes field of study dummies as independent variables. On the basis of this specification, we do indeed find that individuals who participate in higher education because of investment earn a positive albeit small wage bonus.

Several directions for further research can be advanced. First of all, the educational motives might be correlated with unobservable variables such as expectations, attitudes or abilities. Given the time-invariant nature of the motives, panel-data techniques cannot account for this problem. Therefore, our results do not necessarily represent causal relationships. A potential solution for this problem may be to use instrumental variables. However, finding reliable and valid exclusion restrictions is not straightforward. At least, the dataset used in this study does not contain such instruments. Second, for the measurement of the motives, we relied on retrospective surveys at age 23. Not only may this induce random memory recall errors, it may also cause the results to be driven by justification bias. Hence, longitudinal research that surveys individuals already at the start of their higher education career would be welcome. Third, we did not account for differences between individuals in the associations between the motives and the outcome variables. The impact of social norms, for instance, may differ depending on social background. Individuals from a family of doctors may rather choose to become a doctor while individuals that grew up in an artistic environment may be more likely to choose for an artistic job. Moreover, social background may also influence the results regarding the investment motive. As Rochat and Demeulemeester (2001) argue, individuals from a poorer social economic background may be more risk averse and, hence, choose less risky and therefore on-average also less remunerative fields of study. Further research with a more in-depth focus on the role of social background in explaining educational motives and their association with labour market mismatches is therefore suggested. Finally,

[16] Estimation results for these robustness checks are available upon request.

we tested only indirectly for the importance of job search and acceptance behaviour. An interesting path for further research would be to test this in a more direct way by including direct measures of job search in the model.

6. Conclusion

The main focus of the foregoing analyses has been the question whether the different motives to engage in higher education are associated with different risks of overeducation and its well-known negative consequences in terms of job satisfaction and wage penalties. Overall, the main conclusion to be drawn from them is that the claim that over-education is the result of educational consumption is not consistent with our findings. On the contrary, young people having engaged in tertiary education motivated by education consumption are less likely to be overeducated. Moreover, even if our findings also show them facing a stronger job satisfaction penalty to overeducation than other workers, they are, even when moderately overeducated, still as satisfied with their jobs as other workers.

In case our findings result from people making well-informed and rational choices, the private implications of these findings would be relatively limited. Presuming however that young people have incomplete information about the consequences of their educational choices, our results warrant a clear advice for them: whatever other considerations influence your choice, choose in any case a field of study which you find exciting. Conversely, our findings also seem to warrant the advice to avoid continuing in higher education solely because of student life consumption, since this seems to be associated with increased levels of overeducation. The private implications may also be more extensive in case her choices result from non-standard decision making (Koch, Nafzigera and Nielsen 2015). For instance, due to time-inconsistent preferences, students may overly value the benefits of student life and make decisions that do not maximize their lifetime utility; put differently, these decisions may generate negative 'internalities'. Finally, even in the absence of information problems and non-standard decisions, there are implications but mainly from a social point of view. Overall, the results suggest that policies aimed at orienting the widespread subsidisation of higher education more so towards those being motivated by educational consumption and less so towards those being motivated by student life consumption only could be fruitful. A specific example are admission policies that screen prospective students on their motivations.

Evidently, these implications crucially depend upon the extent to which other research confirms our findings in a causal way. Moreover, many other issues remain open for discussion and in need of more thorough research relying on more specific data about psychological characteristics, social background or job search behaviour as well as on a

better understanding of the factors influencing the differential malleability of the motives, leading to the choice to engage in higher education. Although the latter question is outside the scope of our analyses, it is without a doubt of great importance when trying to understand how and why changing social contexts or policy measures affect why and how young people decide (or not) to start higher education.

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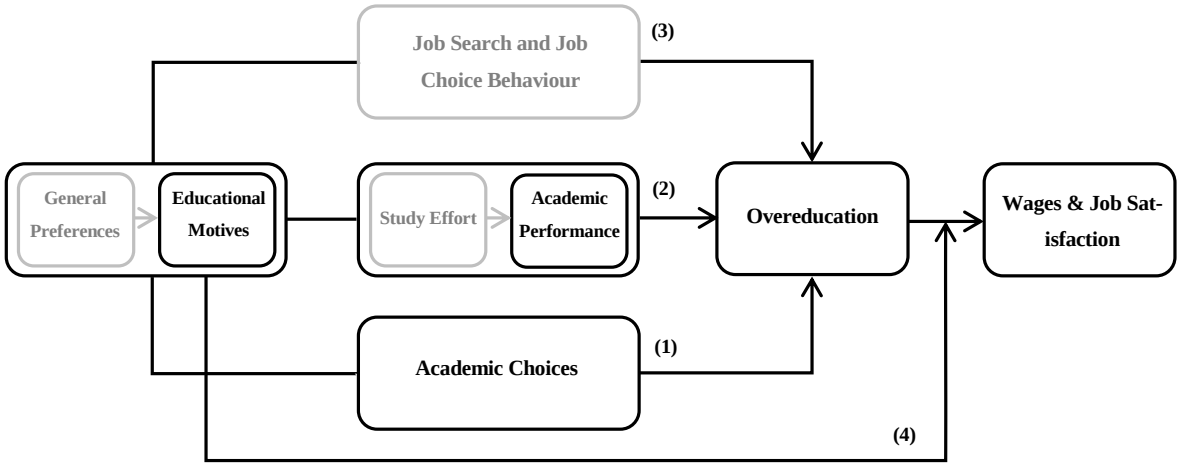
FIGURE 1 CONCEPTUAL MODEL



Note: This figure merely reflects our conceptual framework and is not used as a Directed Acyclic Graph (DAG) identification tool in the empirical analysis.

TABLE 1 PRINCIPAL COMPONENT ANALYSIS OF THE EDUCATIONAL MOTIVES – FACTOR LOADINGS

	Component			
	1	2	3	4
To earn a higher wage	-0.083	0.812	0.102	0.111
To have a higher chance on a good job later	0.180	0.812	0.040	0.079
Because most of my classmates/friends also attended higher education	-0.100	0.046	0.231	0.718
Because I did not yet want to go working	0.073	0.151	0.030	0.791
Because my parents/family expected that	-0.117	0.158	0.787	0.199
It was obvious that I would continue my education	0.178	0.000	0.844	0.061
Because the subject of the studies interested me	0.699	0.038	-0.014	-0.234
Because I wanted to work further on my self-development	0.767	0.161	0.021	-0.020
Because I enjoy studying	0.711	-0.111	0.065	0.255

Data source: SONAR, own calculations.
Number of individuals = 2612.

TABLE 2 THE RELATIONSHIP BETWEEN THE EDUCATIONAL MOTIVES AND THE LIKELIHOOD TO BE OVEREDUCATED (JOB ANALYSIS MEASURE) – RANDOM EFFECTS LOGIT MARGINAL EFFECTS ESTIMATES AND STANDARD ERRORS

	(1)	(2)
Educational Motives		
Investment	0.076***	0.013
	(0.007)	(0.012)
Educational consumption	-0.148***	-0.061***
	(0.007)	(0.013)
Student life consumption	0.144***	0.037***
	(0.007)	(0.012)
Social norms	-0.013*	-0.001
	(0.007)	(0.012)
Master's Degree	-	0.281***
		(0.031)
Field of Study (ref.: Economics, Business and Law)		
Linguistics, history and philosophy	-	-0.149**
		(0.059)
Behavioural and social sciences	-	-0.238***
		(0.038)
Health and (para)medicine	-	-0.417***
		(0.034)
Natural sciences and engineering	-	-0.077**
		(0.036)
Arts	-	0.198**
		(0.085)
Education	-	-0.819***
		(0.042)
Years of grade retention	-	0.013
		(0.020)
Degree class (ref.: pass)		
Distinction	-	-0.220***
		(0.045)
Great or greatest distinction	-	-0.097***
		(0.027)

Dependent variable: overeducation (measured by means of job analysis)
Control variables in every model: gender, non-European descent, educational level mother, educational level father, study track secondary education, study results secondary education, birth year, experience, experience squared, cohabiting, having a child, observation year, job type.
Educational motives are measured based on principal component analysis.
Number of individuals = 2612; number of observations= 6583.
*: p<0.10; **: p<0.05; ***: p<0.01.

TABLE 3 THE RELATIONSHIP BETWEEN THE EDUCATIONAL MOTIVES AND ACADEMIC CHOICES – LOGIT COEFFICIENTS AND STANDARD ERRORS

	(1)	(2)					
	Binary logit	Multinomial logit					
	Level of Education	Field of study (reference = Economics, Business and Law)					
	Higher tertiary education	Linguistics, history and philosophy	Behavioral and social sciences	Health and (para)-medicine	Natural sciences & engineering	Arts	Education
Educational Motives							
Investment	-0.152***	-0.577***	-0.552***	-0.386***	-0.271***	-0.670***	-0.540***
	(0.048)	(0.103)	(0.074)	(0.075)	(0.071)	(0.140)	(0.071)
Educational consumption	0.288***	0.638***	0.318***	0.276***	0.224***	0.446**	0.383***
	(0.051)	(0.128)	(0.076)	(0.074)	(0.065)	(0.181)	(0.070)
Student life consumption	0.265***	-0.196*	-0.072	-0.196***	-0.164***	-0.507***	-0.255***
	(0.046)	(0.095)	(0.070)	(0.070)	(0.063)	(0.166)	(0.067)
Social norms	0.088*	-0.101	0.020	-0.001	0.064	-0.252	0.185***
	(0.048)	(0.113)	(0.072)	(0.070)	(0.066)	(0.162)	(0.049)

Dependent variables: Master's degree (column (1)) or field of study (column (2))
Control variables in every model: gender, non-European descent, educational level mother, educational level father, study track secondary education, study results secondary education, birth year. Additional control in fields of study model: educational level.
Educational motives are measured based on principal component analysis.
Number of individuals = 2612.
*: p<0.10; **: p<0.05; ***: p<0.01.

TABLE 4 THE RELATIONSHIP BETWEEN THE EDUCATIONAL MOTIVES AND ACADEMIC PERFORMANCE – POISSON OR ORDERED PROBIT REGRESSION COEFFICIENTS AND STANDARD ERRORS

	(1)	(2)
	Poisson regression	Ordered probit
	Repeated years	Degree Class
Educational Motives		
Investment	0.030	-0.054**
	(0.036)	(0.025)
Educational consumption	-0.141***	0.161***
	(0.034)	(0.026)
Student life consumption	0.014	0.003
	(0.035)	(0.024)
Social norms	0.017	-0.026
	(0.036)	(0.025)

Dependent variables: Number of repeated years (column (1)) or degree class (column (2))
Control variables: gender, non-European descent, educational level mother, educational level father, study track secondary education, study results secondary education, birth year, educational level, field of study. Additional control in grades model: repeated years.
Educational motives are measured based on principal component analysis.
Number of individuals = 2612.
*: p<0.10; **: p<0.05; ***: p<0.01.

TABLE 5 THE RELATIONSHIP BETWEEN THE STUDENT MOTIVES, OVEREDUCATION (JOB ANALYSIS) AND OTHER OUTCOME VARIABLES – RANDOM EFFECTS IV LINEAR REGRESSION COEFFICIENTS AND STANDARD ERRORS

	(1) LN(Wages)	(2) Job satisfaction
Educational Motives		
Investment	-0.003	0.011
	(0.003)	(0.017)
Educational consumption	0.008**	0.056***
	(0.004)	(0.020)
Student life consumption	-0.002	-0.036**
	(0.003)	(0.018)
Social norms	-0.002	0.002
	(0.004)	(0.019)
Years of Overeducation	-0.011***	-0.115***
	(0.003)	(0.014)
Interaction terms		
Years of Overeducation * Investment	-0.004*	0.007
	(0.002)	(0.011)
Years of Overeducation * Educational consumption	-0.005**	-0.025**
	(0.002)	(0.012)
Years of Overeducation * Student life consumption	-0.004	-0.005
	(0.002)	(0.013)
Years of Overeducation * Social norms	-0.005**	0.014
	(0.002)	(0.011)

Dependent variables: LN(wages) (column (1)) or job satisfaction (column (2))
Control variables: gender, non-European descent, educational level mother, educational level father, track secondary education, study results secondary education, birth year, educational level, fields- of study, grades, repeated years, experience, experience squared, cohabiting, having a child, observation years, job type, percentage of full employment, sector, firm size, night work, shift work, public employee, Mundlak correction terms for time-varying variables.
Educational motives are measured based on principal component analysis.
Based on instrumental variable (IV) estimates with subjective years of overeducation measured by means of worker assessments as instrumental variable for years of overeducation measured by means of job analysis.
Number of individuals = 2612; Number of observations= 6583.
*: $p<0.10$; **: $p<0.05$; ***: $p<0.01$.

APPENDIX

TABLE A DESCRIPTIVE STATISTICS LABOUR MARKET OUTCOMES

	Start first job (N=2612)	At age 23 (N=1175)	At age 26 (N=1499)	At age 29 (N=1302)
OVER (Job Analysis)	0.521	0.444	0.421	0.452
YOVER (Job Analysis)	1.700	1.449	1.137	1.219
OVER (Worker Assessment)	0.363	0.267	0.290	0.315
YOVER (Worker Assessment)	0.913	0.684	0.580	0.627
LN(Wages)	2.017	2.027	2.114	2.175
Job satisfaction	3.922	4.309	4.126	4.129

OVER = dummy indicating overeducation; YOVER = years of overeducation.

TABLE B THE RELATIONSHIP BETWEEN THE EDUCATIONAL MOTIVES AND THE LIKELIHOOD TO BE OVEREDUCATED (WORKER ASSESSMENT MEASURE) – RANDOM EFFECTS LOGIT MARGINAL EFFECTS ESTIMATES AND STANDARD ERRORS

	(1)	(2)
Educational Motives		
Investment	0.007	0.010
	(0.009)	(0.008)
Educational consumption	-0.030***	-0.038***
	(0.010)	(0.008)
Student life consumption	0.052***	0.022***
	(0.011)	(0.008)
Social norms	0.009	0.002
	(0.009)	(0.008)
Master's Degree	-	0.404***
		(0.015)
Field of Study (ref.: Economics, Business and Law)		
Linguistics, history and philosophy	-	-0.022
		(0.037)
Behavioural and social sciences	-	-0.042*
		(0.025)
Health and (para)medicine	-	-0.259***
		(0.032)
Natural sciences and engineering	-	0.031
		(0.023)
Arts	-	0.071
		(0.055)
Education	-	-0.255***
		(0.034)
Years of grade retention	-	0.002
		(0.013)
Degree class (ref.: pass)		
Distinction	-	-0.195***
		(0.030)
Great or greatest distinction	-	-0.085***
		(0.018)

Dependent variable: overeducation (measured on the basis of worker assessments)
Control variables in every model: gender, non-European descent, educational level mother, educational level father, study track secondary education, study results secondary education, birth year, experience, experience squared, cohabiting, having a child, observation year, job type.
Educational motives are measured based on principal component analysis.
Number of individuals = 2612; number of observations= 6583.
*: p<0.10; **: p<0.05; ***: p<0.01.

TABLE C THE RELATIONSHIP BETWEEN THE STUDENT MOTIVES, OVEREDUCATION (WORKER ASSESSMENT) AND OTHER OUTCOME VARIABLES – RANDOM EFFECTS IV LINEAR REGRESSION COEFFICIENTS AND STANDARD ERRORS

	(1) LN(Wages)	(2) Job satisfaction
Educational Motives		
Investment	-0.000	0.007
	(0.003)	(0.015)
Educational consumption	0.006*	0.049***
	(0.003)	(0.017)
Student life consumption	-0.002	-0.022
	(0.003)	(0.015)
Social norms	-0.001	0.011
	(0.003)	(0.016)
Years of Overeducation	-0.022***	-0.155***
	(0.003)	(0.018)
Interaction terms		
Years of Overeducation * Investment	-0.002	-0.014
	(0.003)	(0.015)
Years of Overeducation * Educational consumption	-0.003	-0.044**
	(0.003)	(0.017)
Years of Overeducation * Student life consumption	-0.007**	0.002
	(0.003)	(0.017)
Years of Overeducation * Social norms	-0.006**	0.011
	(0.003)	(0.015)

Dependent variables: LN(wages) (column (1)) or job satisfaction (column (2))
Control variables: gender, non-European descent, educational level mother, educational level father, track secondary education, study results secondary education, birth year, educational level, fields- of study, grades, repeated years, experience, experience squared, cohabiting, having a child, observation years, job type, percentage of full employment, sector, firm size, night work, shift work, public employee, Mundlak correction terms for time-varying variables.
Educational motives are measured based on principal component analysis.
Based on instrumental variable (IV) estimates with years of overeducation measured by means of job analysis as instrumental variable for years of overeducation measured by means of worker assessments.
Number of individuals = 2612; Number of observations= 6583.
*: p<0.10; **: p<0.05; ***: p<0.01.