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# The Expansion of Higher Education and Post-Materialistic Attitudes to Work in Europe: Evidence from the European Values Study\*

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**Abstract:** The article focuses on the relationship between higher education and post-materialistic attitudes to work, and how it has changed following the recent expansion of systems of higher education in Europe. Using data from the European Values Study on 28 countries with the time frame between 1990 and 2008, the analysis shows that the previously observed link between higher education and post-materialism also applies to work values. Higher-educated Europeans were both more post-materialistic and less materialistic in their work orientations than their lower-educated counterparts. This association was, however, weakened by tertiary expansion. Work-related post-materialism declined with the increasing share of university-educated individuals in the working-age population. Interestingly, so, too, did work-related materialism, yet only until the expansion reached 25%, then it gradually increased. It is suggested that these developments, at least in part, stem from the changing position of higher-educated workers in the labour market.

**Keywords:** tertiary expansion, Bologna process, massification, post-materialism, European Values Study

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## **Introduction**

Systems of higher education in Europe, as well as elsewhere around the globe, expanded for the better part of the 20th century [Brown 1995; Schofer and Meyer 2005; Boliver 2011; Haim and Shavit 2013] and continue to do so well into the new millennium, a trend that has been aided by multiple factors including international strategies such as the Bologna Process. Along with this expansion, and in order to accommodate the ever-growing demand it has produced, the tertiary level has also differentiated, giving rise to a greater variety of institutions, fields of study, and degrees [Teichler 1998; Štefánik 2014]. Moreover, the student population itself has become more heterogeneous, increasingly comprising women and minorities, individuals with different skill sets and motivations, and people from different socio-economic backgrounds [Terenzini et al. 1996; Zamfir et al. 2018; DiPrete and Buchman 2013].

While over the years these phenomena have been described in great detail, their broader implications are not yet entirely clear. On the one hand, higher levels of education have long been linked to many favourable outcomes – both economic and non-monetary [Vila 2000; Hout 2012; Dickson and Harmon 2011]. Higher education has also been observed to foster liberal, tolerant, and overall post-materialistic attitudes and values [Kalmijn and Kraaykamp 2007; Inglehart 1971]. It could be expected, therefore, that educational expansion (resulting in the massification of the tertiary level) would gradually enhance the well-being of individuals and societies – for example, by facilitating access to good jobs and good pay, while also cultivating healthy lifestyles and tolerant values among an increasingly larger share of the population.

On the other hand, massification is just as likely to weaken the link between higher education and its returns as the function, form, and content of education shifts [e.g. Trow 1973] or as the supply of graduates exceeds demand in the labour market, leaving many to accept lower-quality jobs and lower pay [Tomlinson 2008; Bourdieu 1996; Bourdieu and Passeron 1990]. The link may also be weakened by differentiation, which has been hypothesised to perpetuate inequalities in the education system and in the labour market alike [Raftery and Hout 1993; Lucas 2001].

This article aims to build on some of these themes by taking a closer look at the implications of tertiary expansion for work in Europe. However, rather than looking at economic returns such as income, it strives instead to address attitudes and values associated with work and how they have changed alongside the expansion of higher education systems linked to the Bologna Process. In particular, we focus on two issues: (1) the association between higher education and post-materialistic work values and (2) the extent to which this supposed link has been affected by tertiary expansion. Do higher-educated individuals – when compared to their lower-educated counterparts – ascribe less importance to the materialistic characteristics of jobs and more importance to the non-materialistic characteristics? Is this still the case when the share of higher-educated individu-

als in the labour market increases? To answer these questions, we employed data from three waves of the European Values Study, involving 28 European countries and 13 aspects of work summarised in two indexes. The article is organised as follows: First, we briefly outline the sources and outcomes of tertiary expansion in Europe after the year 2000. Next, we summarise some of the implications of these developments for labour market performance in general and for attitudes to work in particular. Lastly, we analyse the data and discuss the results.

### **Expansion and massification in the two decades after Bologna**

Systems of tertiary education have been expanding globally since the mid-20th century [Schofer and Meyer 2005; Boliver 2011; Haim and Shavit 2013; Brown 1995]. While its original sources and drivers remain unclear<sup>1</sup> [Haim and Shavit 2013], tertiary expansion at the turn of the new century tends to be linked to the capacity of nation states to compete in the knowledge-driven global economy [Tomlinson 2008; Liu, Green and Pensiero 2016; Mount and Belanger 2004; Altbach et al. 2017]. Such a rationale is certainly present in the Bologna Declaration, a joint initiative of European countries that, arguably, not only encouraged further expansion after the year 2000 but where the tertiary level is concerned also systematised it in its outcomes. Signed in 1999, the declaration's stated aim was to more closely align European systems of higher education and create a single European higher education area (EHEA) in which national systems would be comparable and compatible [Bologna Declaration 1999; Keeling 2006]. This would be achieved by working toward common objectives, namely the adoption of two (later three – bachelor's, master's, and doctoral) main study cycles and the use of comparable degrees and a credit system [Bologna Declaration 1999].

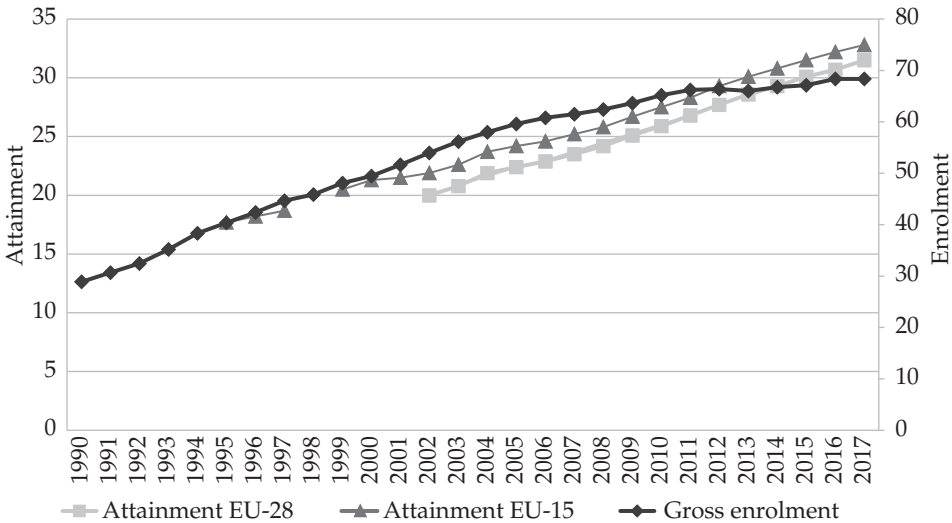
Following these objectives, European systems of tertiary education opened themselves up to a larger number of entrants, thereby likely (at least in part) accelerating (but not introducing) the massification of (tertiary) education in Europe.<sup>2</sup> The key developments are summarised in Figure 1. We can see that in what used to be the EU-28, the gross tertiary enrolment rate rose from 48% in 1999 to 68% in 2017, although it is clear that the rate had already been rising before the Bologna process commenced. Figure 1 also shows an increase in the share

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<sup>1</sup> Although factors such as governmental interventions or technological change have been named among possible explanations [Haim and Shavit 2013].

<sup>2</sup> Teichler [1998: 9] noted that '[t]he term "mass higher education" was traditionally employed to describe the growth of enrolment beyond the level of academic reproduction and training for a small number of occupations requiring this education for demanding professions and privileged social positions'. According to Trow [1973], higher education enters a mass stage with the enrolment of more than 15% of a given age cohort (and shifts to a universal stage with an enrolment of more than 50%).

**Figure 1. Gross tertiary enrolment and tertiary attainment (in the population aged 15–64), European Union 28 and European Union 15, 1990–2017**



Source: World Bank [2019] (enrolment), Eurostat [2019] (attainment), available data.

Note: Tertiary attainment is the share of university-educated individuals (in the population aged 15–64).

World Bank defines gross enrolment as ‘the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the level of education shown’ (<https://datacatalog.worldbank.org/school-enrollment-secondary-gross>).

of individuals with tertiary attainment in the working-age population from 20% in 2002 to 32% in 2018 in the EU-28 (and from 18% in 1996 to 33% in 2017 in the EU-15). To accommodate growing demand, the tertiary level has also differentiated horizontally (although, as with massification, horizontal differentiation had already been underway before the EHEA initiative [e.g. Reimer and Jacob 2011]). New higher-education institutions (HEIs) have been established – both public and private (but oftentimes second-tier [Boliver 2011; Reimer and Jacob 2011]) – and new types of study fields, courses, and programmes have been introduced [Reimer and Jacob 2011; Altbach et al. 2017].

### The implications of expansion within and outside higher education systems

While the changes outlined above have been far-reaching, their broader impacts – in areas such as equality of access, performance in the labour market, values transmission, or the form and function of the education system itself – have yet to be systematically documented, although several major theories offer some use-

ful suggestions. On the one hand, higher education has long been linked to a number of favourable outcomes for both individuals and societies, and the effect of expansion and massification ought therefore to be significantly positive. For example, people with tertiary attainment tend to be healthier, better at managing money, and better at decision-making [Vila 2000; Hout 2012]. They have also been observed to be more tolerant in their attitudes and less radical in their political views, which is said to enhance and strengthen democracy and social cohesion [Hannum and Buchmann 2005; Pascarella and Terenzini 1995; Kalmijn and Kraaykamp 2007; Vila 2000]. Most typically, however, higher education has been understood to tie in with a more advantageous position in the labour market (e.g. better-quality jobs, higher incomes, higher job satisfaction, [Vila 2000]), usually as a result of the knowledge and skills people accumulate over the course of their study (in other words, human capital [Pascarella and Terenzini 1995; Bernardi and Ballarino 2016; Tomlinson 2008]), or as a result of the growing demand for a highly-educated workforce necessitated by continuing technological advances [Brown 1995; Boliver 2011; Card and Dinardo 2002; Bernardi and Ballarino 2014].

The evidence that exists to date, however, does not support many of these expectations. Hannum and Buchmann [2005] summarised that while more educated individuals and societies tend to be healthier, there is an absence of strong evidence about these educational effects on economic growth or democratisation. In line with expectations, access to higher education has indeed been granted to a greater variety of students, who have become a more diverse population not only in terms of their demographic characteristics (such as ethnicity or socio-economic background) but also in terms of their motivations, skills, knowledge, and requirements [Terenzini et al. 1996; Zamfir et al. 2018; Liu et al. 2016]. Inequalities nevertheless persist despite massification, with advantaged groups often over-represented in elite institutions or in more selective, prestigious, or lucrative study fields<sup>3</sup> [Blossfeld et al. 2015; Boliver 2011; Haim and Shavit 2013; European Commission... 2018; DiPrete and Buchman 2013].

Likewise, the link between tertiary attainment and a person's performance in the labour market has not been clearly established. Perspectives such as credential inflation generally reject the expectation of universally high economic returns for all graduates by pointing out that the supply of individuals with tertiary degrees could exceed the actual demand [Elias and Purcell 2004; Tomlinson 2008; Collins 1979, 2002]. Increasingly, tertiary attainment has become a necessary yet insufficient precondition for obtaining a job as entry-level qualifications increase [Tomlinson 2008; Elias and Purcell 2004], yet employers – faced with an over-

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<sup>3</sup> This is in line with the theory of 'effectively maintained inequality' (EMI), which predicts persistent inequality aided by institutional differentiation as members of the advantaged groups are better at navigating the educational system and harvesting its opportunities [Lucas 2001; Haim and Shavit 2013].

supply of graduates – put less emphasis on the formal degree *per se* and more on the type of degree, on the type of HEI that awarded the degree (e.g. its prestige), and on the field of study of their prospective employees [Tomlinson 2008; Liu et al. 2016]. Alternatively, employers may move away from formal credentials altogether, focusing instead on particular skills, personal characteristics, and extra-curricular activities – characteristics oftentimes associated with a person's social origin [Tomlinson 2008; Bernardi and Ballarino 2016]. As a result, a segment of graduates are left to accept jobs of lower quality and lower pay for which they are over-qualified and over-educated [Kivinen and Ahola 1999; Morrison Paul and Siegel 2001]. This mismatch may then have a potentially detrimental effect, both short- and long-term, on the returns to education [Elias and Purcell 2004].

### **Education, expansion, and attitudes to work**

All in all, while expansion seems to hold the promise of many an improvement to the conditions of individuals and societies, it may have consequences that leave people far from achieving this ideal – and ever further from it as student and graduate numbers increase. This might also be the case when it comes to attitudes and values. As briefly mentioned above, higher education is generally understood to foster a specific type of value orientation: 'the higher educated are more liberal on moral issues, more tolerant toward outgroups, less strongly attached to traditional religious values, and more postmaterialistic in their orientation than the lower educated' [Kalmijn and Kraaykamp 2007: 549]. While attitudes and values attached to work are not explicitly mentioned here, it seems reasonable to extrapolate that those, too, tend to be more post-materialistic; meaning that holders of tertiary degrees, when compared to their lower-educated counterparts, put more emphasis on the non-materialistic or intrinsic characteristics of a job (e.g. self-actualisation, usefulness) rather than the materialistic or extrinsic ones (e.g., security, pay) [cf. de Witte et al. 2004].

The mechanism by which education influences attitudes and values, however, is not clear [Brennan et al. 2015]. It might occur *directly*, as people are taught specific abstract skills (critical thinking, empathy) or as they are exposed to different groups and viewpoints during the course of their studies [Brennan et al. 2015; Pascarella and Terenzini 1995]. In this sense it occurs through the cultivation of a generalised, post-materialistic orientation, which then influences other areas of a person's life. The effect may also be *indirect*, wherein education affects specific factors in people's lives (such as income), which then affect their attitudes [Brennan et al. 2015; Kalmijn and Kraaykamp 2007]. This explanation is especially informative where work values are concerned, and it fits well with the optic of the human capital theory [Tomlinson 2008] and the need/scarcity framework used by Inglehart (as summarised in de Witte et al. [2004]). It may be argued that tertiary-educated individuals favour the intrinsic aspects of work because they are largely freed from worrying about material aspects of jobs, as these are

'secured' for them from the start of their careers by virtue of the type of education they had achieved. Alternatively, specific values stem from *selection* rather than education – they pre-exist in the population of students because of a selection based on either cognitive skills or social class [Brennan et al. 2015; Kalmijn and Kraaykamp 2007].

Whatever the case, the relationship between higher education and values may be changing because of expansion and massification. On the one hand, it may be reinforced as growing numbers of individuals are able to capitalise on favourable returns to tertiary attainment. On the other hand, and possibly more likely, the relationship may be gradually deteriorating. First, higher education is becoming increasingly practical rather than academic [Altbach et al. 2017: xii; Prokou 2008], a process generally encouraged by the need to cater to a wider variety of students of different aspirations (or 'clientele', as put by Liu, Green and Pensiero [2016; cf. Teichler 1998: 22; Altbach et al. 2017]), but also aided by the growing emphasis on student employability (used as a measure of HEI performance; [Mason, Williams and Cranmer 2009; Prokou 2008]), which is itself a result of EU-level strategies [Prokou 2008]. This development is particularly pertinent if values are transmitted directly over the course of one's education: if abstract academic knowledge takes a back seat to teaching practical, 'real-world' skills [cf. Mason, Williams and Cranmer 2009], the transmission of values becomes a marginal artefact within the educational process and student and graduate populations may become, on average, less post-materialistic [cf. Trow 1973].

Second, the link between higher education and post-materialistic work attitudes may also deteriorate if the association is indirect, via a disconnect between a person's degree and a person's performance in the labour market. The school-to-work transition has in general, over the years, become less smooth and more diverse, it takes longer and is often characterised by spells of unemployment, mismatch and over-education, precarious employment, or taking 'time out'<sup>4</sup> [Müller and Gangl 2003; Zamfir et al. 2018], and tertiary graduates have not been immune to these developments [Kuron et al. 2015]. While expansion and differentiation have allowed for greater intake, they have also produced greater output that, arguably [e.g. Tomlinson 2008], makes it less likely that all graduates will find a 'good' job (well-matched, stable, good-quality, well-paid, etc.). Indeed, according to Liu, Green and Pensiero [2016: 258], '[m]ounting evidence shows that many graduates with higher education degrees are trapped in low-paid, low-skilled jobs'. Facing such uncertainty with respect to one's career path may then make work values more materialistic, meaning that one's emphasis shifts toward job characteristics such as pay, hours, or security, as these are at the same time both highly important and not granted 'by default' (that is, if we are following the logic of the Maslowian pyramid used by Inglehart [1971], where higher-order

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<sup>4</sup> And was further damaged in the recent recession [e.g. Hadjivassiliou et al. 2016; Liu, Green and Pensiero 2016].



needs and values are only addressed after lower-order needs have been secured and satisfied). The fact that the nature of the school-to-work transition may affect work values and attitudes has previously been noted [Kuron et al. 2015].

Lastly, the association between higher education and post-materialistic (work) attitudes may also deteriorate if it is rooted in selection. As already mentioned, over the course of tertiary expansion, the student (and, by extension, graduate) population has diversified and increasingly comprises individuals of various backgrounds and with various skill sets, motivations, and, importantly, attitudes and values [Brennan et al. 2013; Mount and Belanger 2004; Zamfir et al. 2018; Terenzini et al. 1996; Altbach et al. 2017]. If post-materialistic values are mainly the characteristic of elite or better-off groups and if the education system, as a whole, becomes less selective (and more inclusive of non-elite groups), then it could be argued that values, on average, will shift away from post-materialism and towards materialism (assuming that non-elite groups are more materialistic in their orientations – for example, first-generation students from disadvantaged socio-economic backgrounds [cf. Inglehart 1971]) because of the change in the composition of the student and graduate bodies.

## **Aims**

To summarise, while higher education tends to be linked to an overall post-materialistic value orientation, this link – for a variety of reasons – could grow weaker as systems of higher education expand and massify. Elaborating on existing arguments and suggestions, the aim of the present study is twofold. First, it aims to take a closer look at the association between higher education and work values, which have been somewhat overlooked in the literature to date. We are mainly interested in whether higher-educated Europeans (when compared to their lower-educated counterparts) are indeed less materialistic and more post-materialistic in their attitudes toward various aspects of work.

Materialistic (extrinsic) aspects of work (or work values) are typically external to the individual worker [Twenge et al. 2010] and denote factors such as pay, hours worked, or work security [Kuron et al. 2015; Jin and Rounds 2012; Ros, Schwartz and Surkiss 1999]. Post-materialistic (intrinsic) characteristics of work, on the other hand, relate to self-actualisation and psychological satisfaction, covering aspects such as whether or not a job is interesting, challenging, useful, or fulfilling [Kuron et al. 2015; Jin and Rounds 2012; Ros, Schwartz and Surkiss 1999]. Reporting on survey results, Inglehart and Abramson [1999] summarised that materialistic respondents tended to favour extrinsic work values, while post-materialistic respondents more frequently prioritized intrinsic aspects.

Second, the study aims to determine whether the relationship between higher education and post-materialistic work values has been affected by tertiary expansion. In particular, we aim to explore whether this relationship has become

weaker as European systems of higher education have continued to expand since the year 2000, and as tertiary education has (presumably) become more heterogeneous, at times less academic, and, importantly, less of a guarantee of a 'good job' upon entering the labour market.

### Data, variables, and methods

The analysis was undertaken using the European Values Study (EVS). The EVS is an international, repeated, cross-sectional survey that aims to 'empirically uncover basic values, attitudes, and preferences of the European population and to explore the similarities, differences, and changes in these orientations' [Halman 2001: 1]. The EVS focuses on various thematic areas such as family, politics, national identity, religiosity, and work. The study is fielded every nine years in over 30 European countries, many of which take part repeatedly. It is this repeated participation as well as the (more or less) stable content of the questionnaire that make the survey's data well suited for use in analyses of changing trends in attitudes and values over time.

At the time of writing, five waves of the EVS had been conducted (1981, 1990, 1999, 2008, and 2017). We used three of these waves in our analysis (waves 2–4), which cover the periods both before and during the Bologna process (1990–2008). We chose to omit both the first and the last wave because of an insufficient number of participating countries (in wave 1) and the small number of items in the 'important job aspects' battery<sup>5</sup> (in wave 5). The analysis was further limited to the countries that took part in all three of these waves<sup>6</sup> (28 countries in total) and to the working-age population (defined here in line with the literature on social stratification as people between the ages of 25 and 64 [cf. Breen 2004; Erikson and Goldthorpe 1992]). This resulted in a sample of  $N = 64\,119$  observations. As such, the data had a hierarchical structure: the 64 119 respondents were nested in 28 countries, and these in turn are nested within three EVS waves. Usually, such a constellation would require three-level modelling, yet the number of groups at the second and third levels was too small (28 and 3) and the value of the intraclass correlation coefficient (ICC) unjustifiable [Bryan and Jenkins 2015]. For the materialistic model, the original two-level ICC was 12.44%. When testing the feasibility of the three-level approach, the ICC decreased to 6.22% for individuals nested in the countries level and slightly increased to 13.15 % for countries nested in

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<sup>5</sup> For the entirety of its run, the EVS contained a detailed battery on aspects of work that was consistently made up of 13 items. However, in 2017, about half of these items had been dropped (including job security, pressure at work, or interesting work).

<sup>6</sup> With the exception of Greece, Croatia, and Luxembourg (which did not participate in wave 2) and Norway (which did not participate in wave 3). Data for the United Kingdom, originally divided into Great Britain and Northern Ireland, were merged.

the waves level. We found similar changes when checking the post-materialistic model. The original ICC was 10.22%, which decreased to 1.89% for the first level and increased to 10.32% for the second level. Therefore, we assumed that the differences between countries are greater than the differences between individuals within countries. We considered essential to control for individual characteristics on level 1, but adding a third level would improve ICC very slightly (by 0.71 of a percentage point for the materialistic model and 0.1 of a percentage point for the post-materialistic model). Therefore, 67 country-wave<sup>7</sup> contexts were created, allowing for the use of the more statistically correct two-level models.<sup>8</sup> All the analyses were performed using Stata SE 15.1.

### *Dependent variables*

For the purposes of the analysis – and based on the variables available in the combined dataset – we opted to use not one but two dependent variables. In this instance, these were two summary indexes of both post-materialistic and materialistic work orientations.<sup>9</sup> These indexes were constructed in two steps. When the EVS was conducted, respondents were given a list of 13 ‘aspects of a job that people say are important’ and were asked to select those which they personally deemed to be so (items were coded 1 if selected and 0 if they were not). In the first step, these 13 items were classified as either extrinsic (materialistic) or intrinsic (non- or post-materialistic). This classification was guided by the available literature [Kuron et al. 2015; Jin and Rounds 2012; Ros, Schwartz and Surkiss 1999; Twenge et al. 2010] and supported by the result of a factor analysis (not shown).<sup>10</sup> The ‘extrinsic’ group comprised five items: good pay, not too much pressure, good job security,

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<sup>7</sup> The 28 countries nested in 3 waves produced 84 country-wave combinations, but 3 countries were missing in wave 2 and 1 country was missing in wave 3, as mentioned above. In five cases, information concerning educational expansion was missing; in 7 cases, information about age-specific unemployment was missing; therefore, only 67 country-wave contexts were used in all the models.

<sup>8</sup> When we tried to perform (statistically incorrect) three-level models, however, the results were almost the same, which shows that our approach is valid.

<sup>9</sup> The literature tends to distinguish between work values and work attitudes. Work values often relate to desirable traits of jobs or their outcomes [Kuron et al. 2015; Ros et al. 1999], while work attitudes have been defined in somewhat vague terms as evaluations of – or feelings about – one’s job [Georgel and Jones 1997]. Throughout this paper, these two terms are, nevertheless, used interchangeably to mean general views on specific aspects of work.

<sup>10</sup> Our grouping also converged with the categorisation created by de Witte et al. [2004: 265], who used principal component analysis in wave 3 of the EVS. By means of subtraction the authors then created a single index, indicating a ‘dominant’ work orientation for each respondent. We decided, however, to use both measures separately, treating them as two complementary sources of information. The two indexes were moderately correlated (0.493).

good hours, and generous holidays. The 'intrinsic' group included the remaining eight items: an opportunity to use initiative, the opportunity to achieve something, a responsible job, a job that is interesting, a job that meets one's abilities, pleasant people to work with, a useful job for society, and meeting people. Two indexes were then constructed by adding up responses across items in both groups. The index of work materialism ranged from 0 to 5 (the higher the number, the higher a person's materialistic orientation); the index of work post-materialism ranged from 0 to 8 (the higher the number, the higher one's post-materialistic orientation). Cronbach's alpha was used to validate both indexes (yielding alphas of 0.6685 and 0.7855 for materialism and post-materialism, respectively).

### *Independent and control variables*

As the aim of the analysis is twofold, we used two main independent variables: educational attainment and educational expansion. Educational attainment is one's highest level of education categorised as (1) primary, (2) secondary, and (3) tertiary.<sup>11</sup> Because wave 2 did not collect data on people's formal level of education, we approximated it using information on the respondents' age when they completed their education, with (arbitrary) cutting points set at 17 and 21 years of age (the result of this approximation was validated using information available for several countries on the known share of their tertiary-educated population). For the purposes of our analysis, educational expansion was defined as the share of tertiary-educated individuals within the working-age population (i.e. the population aged 25–64). Given that deriving this information from EVS data could produce an inaccurate estimate, we extracted it instead from the European Union Labour Force Survey (LFS), a more precise data source.<sup>12</sup> The LFS was also used to obtain information about age-specific unemployment (the share of unem-

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<sup>11</sup> We opted for this categorisation in order to gain a more detailed understanding of the observed phenomenon.

<sup>12</sup> The European Union Labour Force Survey (EU-LFS) is a household sample survey conducted quarterly in the 28 Member States of the European Union and 7 non-EU countries. The Labour Force Surveys are conducted by national statistical institutes across Europe (in some countries since 1983). In 2018, the LFS sample size across the EU was about 1.5 million individuals. Because most countries became involved in the EU-LFS survey later than they were involved in the EVS, the tertiary-educated share for wave 2 had to be modelled as follows. Instead of EU-LFS data for the year 1990, which in most cases does not exist, data for 2000 were used. This means that instead of people in the 25–64 age range, we had to use respondents ten years older in the 35–74 age range. The correctness of our approach can be justified by comparing our results with the official statistical information available for eight countries. With the exception of the United Kingdom and Portugal, where the difference between our values and the official ones were 7.23 and 5.40 percentage points, respectively, the differences for other countries ranged from 0.16 to 1.73 percentage points, with a mean of 1.06 percentage points.

**Table 1. Distribution of dependent variables by selected control variables**

		Post-materialistic index		Materialistic index	
		Mean	SD	Mean	SD
Gender	Male	4.288	2.478	2.522	1.518
	Female	4.282	2.459	2.566	1.544
Education	Primary	4.067	2.536	2.263	1.529
	Secondary	4.291	2.453	2.593	1.519
	Tertiary	4.713	2.291	2.309	1.526
Total		4.285	2.468	2.546	1.532

**Table 2. Summary overview of variables used in the analysis**

Variable	Description	Values
Individual level		
Index of post-materialistic work values	Summary index consisting of eight important-in-job aspects	Range 0–8
Index of materialistic work values	Summary index consisting of five important-in-job aspects	Range 0–5
Gender	Sex of the respondent	1 = male (46.02%), 2 = female (53.98%)
Education	The highest level attained recoded into three categories. Imputed into wave 2	1 = primary (45.26%) 2 = secondary (31.59%) 3 = tertiary (23.15%)
Age	–	Range 25–64
Contextual level		
Wave × Country	3 EVS waves (1991, 1999, 2007) and 28 EU countries (AT, BE, BG, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IT, LT, LU, LV, MT, NL, NO, PL, PT, RO, SE, SI, SK)	80 wave-country contexts
Age-specific unemployment	Proportion of people aged 25–34 who are currently unemployed	Range 1.99–16.44
Educational expansion	Proportion of people with tertiary education (ISCED 2011 levels 5–8) in age group 25–64 in respective country and respective year (calculated from EU-LFS data)	Range 5.36–41.80

ployed in the 25–34 age group) – a variable we used as a proxy for the openness of national labour markets to recent graduates (in order to account, albeit in a limited way, for the work-related macro-level context).

For the remaining control variables, we used gender, age, and wave (at the contextual level). We decided not to add more macro-level controls because of the limited availability of information for the year 1990 (the whole of wave 2 would have had to be dropped, which would have seriously limited the scope of the analysis). Table 2 presents a detailed description of the variables used at both levels of the model (including the coding). Table 1 shows the distribution (mean, standard deviation) of dependent variables in relation to the control variables.

### **Analytical strategy**

Two identical sets of four multi-level mixed regression models were estimated, one for each independent variable. Within the analysis, both indexes were considered continuous variables, although one had nine and the other six categories. While such simplification comes with limitations, it enables the use of computationally faster and interpretably cleaner linear regression models instead of multi-level ordered logistic models. In each set, the zero-order model showed the mean of the dependent variable. Model 1 (PM-1 for the post-materialistic index, M-1 for the materialistic index) then added the level of education; Model 2 (PM-2, M-2) further included selected controls (gender, age). Model 3 (PM-3, M-3) addressed the effect of educational expansion by adding the share of tertiary-educated respondents in the 25–64 age group, the interaction between expansion and attainment (to see whether individuals of different education levels had been affected differently by the tertiary expansion), and the age-specific unemployment rate (to control for the openness of national labour market). Lastly, to introduce non-linearity, Model 4 (PM-4, M-4) used tertiary expansion in a categorised rather than continuous form (one group for each increment of 5 percentage points, i.e., 5, 10, 15, etc.). The results for Models 1 to 3 are summarised in Table 3 (the index of post-materialistic work values) and Table 4 (the index of materialistic work values). The results for Models PM-4 and M-4 are summarised in Figures 2 and 3.

### **Results**

The results from Models 1 and 2 show that higher education was indeed tied to a preference for the intrinsic aspects of paid work. People with tertiary attainment scored both higher on the post-materialistic index (by 0.789 points in Model PM-2; Table 3) and lower on the materialistic index (by 0.295 points in Model M-2; Table 4) than their counterparts with primary education. The results from Model 3 then indicate that this association was affected by tertiary expansion.

**Table 3. Estimated coefficients for models PM-0 to PM-3 (post-materialistic work values)**

	Model PM-0	Model PM-1	Model PM-2	Model PM-3
<i>Individual level</i>				
Education				
Primary		ref.	ref.	ref.
Secondary		0.393 ***	0.367 ***	0.212 ***
Tertiary		0.816 ***	0.789 ***	0.554 ***
Gender				
Male			ref.	ref.
Female			0.018	0.016
Age			-0.006 ***	-0.006 ***
Constant	4.347 ***	4.024 ***	4.285 ***	5.510 ***
<i>Contextual level</i>				
Educ. expansion				-0.026 **
Unemployment				-0.090 ***
Variance constant	0.848	0.863	0.863	0.782
<i>Interaction</i>				
Expansion*attainment				
Primary				ref.
Secondary				0.008 *
Tertiary				0.010 ***
<i>Model characteristics</i>				
N obs.	64 119	64 119	64 119	64 119
N groups	67	67	67	67
ICC	11.75%	12.31%	12.32%	10.34%
LL	-145 207.2	-144 644.9	-144 619.3	-144 606.2
BIC	290 447.5	289 345.1	289 316.0	289 334.2

Significance level: \*\*\* p &lt; 0.001, \*\* p &lt; 0.01, \* p &lt; 0.05, † p &lt; 0.1

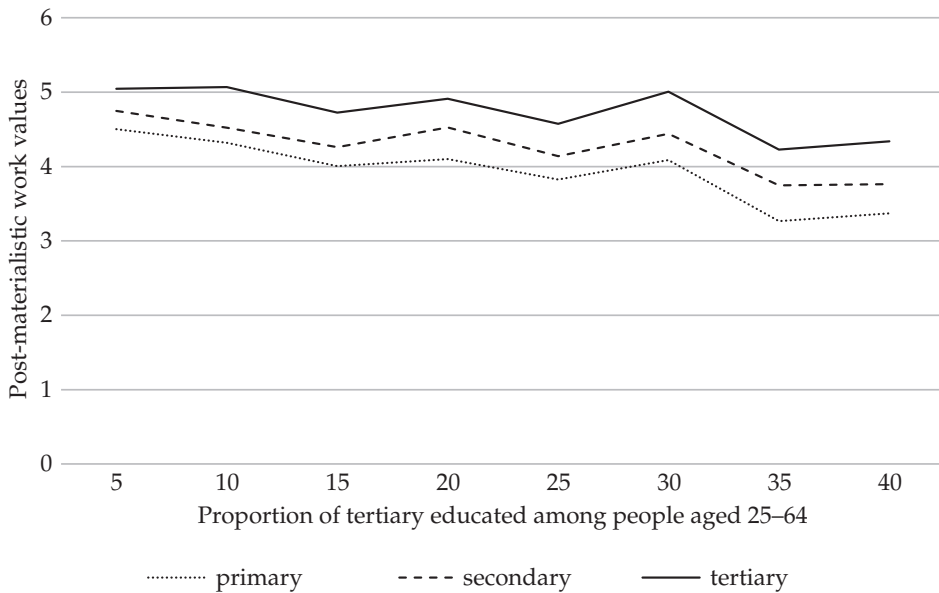
**Table 4. Estimated coefficients for models M-0 to M-3 (materialistic work values)**

	Model M-0	Model M-1	Model M-2	Model M-3
<i>Individual level</i>				
Education				
Primary		ref.	ref.	ref.
Secondary		-0.088 ***	-0.121 ***	-0.293 ***
Tertiary		-0.260 ***	-0.295 ***	-0.558 ***
Gender				
Male			ref.	ref.
Female			0.015	0.012
Age			-0.008 ***	-0.008 ***
Constant	2.565 ***	2.657 ***	2.997 ***	3.324 ***
<i>Contextual level</i>				
Educ. expansion				-0.020 *
Unemployment				0.014
Variance constant	0.590	0.585	0.587	0.574
<i>Interaction</i>				
Expansion*attainment				
Primary				ref.
Secondary				0.008 ***
Tertiary				0.012 ***
<i>Model characteristics</i>				
N obs.	64 266	64 266	64 266	64 266
N groups	67	67	67	67
ICC	14.77%	14.61%	14.74%	14.20%
LL	-113 803	-113 652	-113 540.5	-113 517.9
BIC	227 639.2	227 359.4	227 158.4	227 157.5

Significance level: \*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$ , †  $p < 0.1$



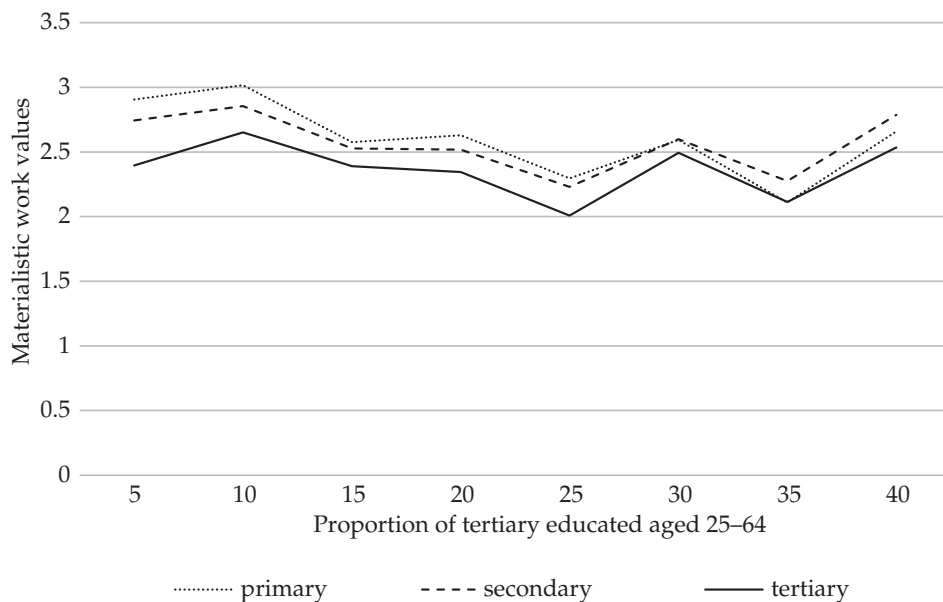
**Figure 2. Average work post-materialism by the level of tertiary expansion, estimated results from model PM-4**



Controlling for expansion, the estimated coefficient for university education in the ‘PM set’ changed from 0.789 in PM-2 to 0.554 in PM-3. Thus, while individuals with tertiary attainment still scored higher on post-materialism than their lower-educated counterparts, the difference was slightly smaller when expansion was accounted for. In other words, tertiary expansion weakened the relationship between education and work-related post-materialism. In a similar fashion – and somewhat curiously – the effect of education on a person’s materialistic work orientation also weakened once expansion was added to model M-3. All else being equal, individuals with tertiary attainment scored even lower on materialism in M-3 than in M-2 (the estimated coefficient changed from  $-0.325$  to  $-0.558$ ). Educational expansion itself was negatively associated with both dependent variables.

Additional information is provided by the results of Models PM-4 and M-4. Figure 2 further illustrates the weakening effect that expansion had on the link between education and post-materialism in that it shows a decline in the average post-materialistic work orientation as the proportion of university-educated individuals in the labour market rises. Figure 3 then sheds some more light on the findings concerning materialism. We see that the index for materialistic work orientation did indeed decline with expansion, but it started to increase once

**Figure 3. Average work materialism by the level of tertiary expansion, estimated results from model M-4**



the share of university-educated individuals in the working-age population exceeded 25%. It is worth noting that in both instances the distance between the estimated marginal effects for each education level changed in different ways, which means that the impact of educational expansion differed according to the education level (this is also shown by the estimated coefficient for the interaction between attainment and expansion in the third model in both sets).

Where the remaining control variables are concerned, women were very slightly (perhaps negligibly) more materialistic in their work orientations than men (though the gender difference bordered on statistical significance in Model M-3), but there was no statistically significant difference in the level of post-materialism. Interestingly, we found a negative association between age and both dependent variables, meaning that with advancing age individuals became simultaneously less post-materialistic and less materialistic. This could mean that as they age people become less clear in their work values. Models PM-3 and M-3 also showed that over time (i.e. across the three EVS waves), Europeans have become both more post-materialistic and more materialistic in their views about important job characteristics, indicating that between 1990 and 2008 European populations gradually became polarised in their work values.

## **Discussion and conclusion**

The existing literature adopts the general view that higher education is associated with a specific kind of post-materialistic orientation in multiple areas of social life, including attitudes towards religion, morals, or politics [Kalmijn and Kraaykamp 2007]. In this paper, we have shown that the same applies to the sphere of work, an area that is not mentioned as frequently in this context. Taking a closer look at the situation in the 28 European countries participating in the EVS, we found that individuals with tertiary attainment – when compared to their less-educated counterparts – were both more post-materialistic and less materialistic in their attitudes towards work. This means that they more frequently saw as important those characteristics of work that may be described as intrinsic and, at the same time, ascribed somewhat less importance to aspects such as pay, hours, or pressure [cf. de Witte et al. 2004].

While education may affect attitudes and values in several ways, it could be argued that, in this particular instance (i.e. where attitudes to work are concerned), its effect has been mainly indirect, realised through the advantage higher education tends to secure in the labour market for those who have attained it [de Witte et al. 2004].<sup>13</sup> Having obtained a ‘good job’ (well-paid, secure, with reasonable hours) merely by virtue of one’s education – or, to borrow from Inglehart and Maslow [Inglehart 1971], having one’s elementary (material) needs satisfied upon entering the labour market – leaves room to consider higher-order needs, that is, the aspects of a job that are less material in nature, such as satisfaction, responsibility, or usefulness. As we observed, it appears that this is still true even in the context of tertiary expansion, which has been hypothesised to cause the ‘over-production’ of graduates, thereby (in theory) dissolving the link between higher education and high-quality employment [Tomlinson 2008; Bourdieu 1996; Bourdieu and Passeron 1990] and – by extrapolation – between education and (work) post-materialism.

This being said, the association between higher education and work-related post-materialism, though not dissolved altogether, has clearly been weakened by the expansion of tertiary education that is taking place as part of the Bologna process. As was shown in the analysis above, when expansion was controlled for, individuals with tertiary attainment were still more post-materialistic than their less-educated counterparts, yet the difference shrank from approximately 0.8 to 0.6 points on the 9-point scale of the summary index. Figure 2 illustrates that higher-educated individuals did indeed become progressively less post-materialistic with advancing expansion. This also hints at international differences, indicating that in countries with a higher share of university-educated individu-

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<sup>13</sup> Interestingly, the age-specific unemployment rate did not account for the education-values relationship, which suggests that different controls (such as mismatch) may be used to test the indirect effect (as the key issue might not be ‘job x no job’ but ‘good job x bad job’).

als (such as Finland or Norway – 37% and 35%, respectively), individuals with tertiary attainment tend to be less post-materialistic in their work attitudes than their counterparts in countries where educational expansion has not been so pronounced (such as Romania or Portugal – 13% in both countries), regardless of time or cohort effects.

Interestingly, we did not find a clear-cut rise in materialism, an intuitive conclusion of such findings. We saw that when used in a continuous form expansion did in fact further weaken the link between higher education and materialism: higher-educated individuals were systematically less materialistic than their lower-educated counterparts, and the difference widened when controlling for expansion. However, when the measure was categorised, materialism among the tertiary-educated declined with educational expansion, yet (unlike post-materialism) only did so until the share of university-educated persons in the working-age population reached 25%. After this, materialism started to increase (in all education groups; Figure 3).

Once again, if education is understood to affect work attitudes indirectly via labour-market performance, then these findings may provide some support for theories such as credential inflation, implying that tertiary expansion does indeed affect the chances of obtaining a ‘good job’ and hinting at a threshold at which the demand for higher educated workers becomes saturated. However, more testing is clearly needed (e.g. using relevant macro-level controls), especially as there exist vast international differences. Moreover, these results in themselves do not invalidate either of the other two main explanations of the effect of education, as they may also illustrate both a shift in the function of higher education (away from values transmission) and waning selection (i.e. a change in the composition of the higher-educated population). Lastly, when it comes to post-materialism, there is a possibility that – along with expansion – the (tertiary-educated) working-age population has gradually been shifting in its preferences, attitudes, and work values towards aspects not covered by the EVS questionnaire, hence the observed decline.

At this point, several limitations of the analysis should be discussed. First and foremost, the analysis would benefit from using a greater variety of control variables, both at the individual and at the macro level. For example, it would make sense to control for one’s social background, namely parental education, yet this information was not collected in the EVS before wave 5. Similarly, it would be useful to use more measures relating to the labour market at selected points in time (e.g. over-education), but this type of information is mostly unavailable for the early 1990s. Second, though the decision not to use wave 5 (because of changes to the ‘job-aspects battery’) did help to construct two dependent variables of reasonable length, it probably limited the results by making them less ‘up-to-date’. Future analyses might also want to focus more closely on changes over time by estimating identical series of models for all EVS waves, experiment with different potential measures of work (post)materialism, make use of more

detailed measure of higher education (e.g. distinguish between bachelor's, master's, and PhD degrees once the right datasets appear), suggest and test various explanations of the weakening relationship, and focus more closely on the association between education and post-materialism in individual countries and under specific circumstances of tertiary expansion.

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