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Not all wealth is the same: types and levels of wealth and children's university enrolment

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Abstract

A number of studies suggest that parental wealth has both primary and secondary effects on offspring's educational decisions, net of other measures family's socioeconomic status. The article documents that there is a positive association between parental wealth and children's university enrolment in Italy, a country characterized by comparatively low levels of wealth inequality and a low enrolment rate in tertiary education. The positive association is confirmed when controlling for children's performance in secondary school, too. Moreover, complementing previous studies, the analyses explore the extent to which different types of wealth have a different effect on children's university enrolment, and on how this effect varies along the wealth distribution and depending on parents' educational level. A positive effect is found only for families with non-negative net wealth and up to the 35th percentile of the wealth distribution. A threshold effect is found for financial wealth as well, being the association positive and significant up to the median of the financial wealth distribution. Real assets show a positive, albeit weaker, association up to the 30th percentile. Next, parental wealth is found to be positively associated with a higher likelihood of enrolment at university only for children of parents with a lower secondary degree or less, whereas the effect is not statistically significant for children of parents with at least an upper secondary degree.

Introduction

In the last two decades renewed attention has been paid to household wealth as a key dimension of social stratification (Spilerman, 2000; Killewald et al., 2017; Pfeffer and Waitkus 2021). Most importantly, it has been shown that wealth is a qualitatively different and distinct dimension of socio-economic status (SES). For instance, Hällsten and Thaning (2021) showed that parental wealth has unique role in explaining children's income and wealth, and in moderating intergenerational reproduction of inequality in other relevant domains. A further element that has attracted scholars' attention is that, in Western countries, private wealth shows a strikingly unequal distribution (Skopek et al., 2014).

Among sociologists, considerable attention has been devoted to assessing the role of parental wealth in shaping inequalities in children's educational opportunities (IEOs) and achievement (Elliot

III et al. 2011; Jez, 2014; Pfeffer, 2018; Dräger and Müller, 2020; Dräger, 2022). Analysing data from Germany, Dräger and Müller (2020) reported a positive association between (non-negative amounts of) parental wealth and (i) children's math scores at the beginning of primary school, and (ii) the probability of attending a Gymnasium. Similarly, Hällsten and Pfeffer (2017) documented the role of parental wealth on children's early educational career: they found a positive association between (non-negative amounts) of wealth and Swedish 9th graders' GPA. Parental wealth is positively associated with children's educational outcomes later in their educational career, too. Jez (2014) found that, net of other important SES dimensions, wealth affects 4-year college attendance in the US. Pfeffer (2018) documented that in the US wealth gaps in college degree attainment have been increasing for the birth cohorts between 1970 and 1989. Hällsten and Thaning (2018; 2021), found that parental wealth influences children secondary and tertiary educational careers; they also show that parental wealth comes second, only after parental education, in terms of net contribution in explaining children's education and achievement.

Building on previous research on the topic, our contribution aims, first, at analysing the association between parental wealth and children's enrolment into tertiary education, in Italy. Most of previous studies on the topic have focused on the US (Conley, 2001; Nam and Huang, 2009; Lovenheim, 2011; Pfeffer, 2018), and Continental (Müller et al., 2020) or Nordic (Hällsten, and Thaning, 2018) European countries. Differently, few evidence is available on the role of wealth in shaping educational inequalities in a Southern European context – characterized by: low enrolment rate in tertiary education and significant levels of drop-outs; high university tuition fees; low levels of social fluidity; high income inequality and low net wealth inequality; and significant role of families in providing support to young adult children. Therefore, evidence from a Southern European country will allow to extend (or not) previous findings to a different cultural and institutional context; also, it will shed light on the extent to which wealth is a tool to transmit social positions across family generations in a familistic system.

A second goal of this article is to focus on secondary effects of wealth – i.e., gaps in educational participation which, net of primary effects, stem from the different set of incentives and constraints related to families' social, cultural, and economic resources (Boudon, 1974). Isolating secondary effects of wealth is highly relevant to shed light on the mechanisms through which wealth influences educational decision-making processes. To this purpose, we include in our analyses a large set of confounders with the purpose of controlling for: parents' SES, including household income; children's academic ability, as measured by their grades at the end of secondary school, and school track. Moreover, by focusing on tertiary degree enrolment, we look at a point of children's

educational career where secondary effects of parental wealth can be expected to be of special significance (Müller et al. 2020).

Third, we aim at dissecting the role of different levels and components of household wealth: we ask whether the role of wealth in affecting university enrolment is observed all along the wealth distribution, and if different types of wealth – i.e., total net wealth, real and financial assets – have the same role in promoting offspring's tertiary education. Findings from some previous studies suggest that the effect of wealth may vary significantly along the wealth distribution; there are results indicating that for negative values of wealth, as well as at the very top of the distribution, the relation can be negative or absent (Dräger and Müller, 2020; Hällsten and Thaning, 2021). Prior contributions to the topic also document the importance of differentiating between wealth components. Analysing the US context, Nam and Huang (2009) report a positive association between financial assets and college attendance, while they do not find any significant relation for homeownership. Lovenheim (2011) documents a positive relation between children's college enrolment and housing wealth among low-income households. A recent study, based on US data, has provided further evidence about the different role played by levels and components of wealth in affecting children's educational career (Dräger et al., 2021). We aim at contributing to the literature by distinguishing between types of wealth (specifically, net wealth, and financial and real assets) and – at the same time – by modelling non-linear effects with flexible estimation methods such as non-parametric regression models.

Finally, building on the increasing empirical evidence on the role of parent's relative risk in explaining parental support behaviour and families' educational expectations and choices (Van de Werfhorst and Hofstede, 2007; Holm and Jæger 2008; Albertini and Radl 2012; Barone et al., 2021), we analyse the extent to which the association between household wealth and university enrolment varies depending on parents' own educational level.

The results of the analyses also contribute to shedding light on the different micro-level mechanisms connecting parental wealth and children's educational opportunities. The understanding of such mechanisms is important from two different perspectives: first, an analysis of which type and level of wealth is associated with improved educational chances is essential to a fine-grained understanding of how and where social positions are transmitted between family generations, contributing to decreasing social fluidity. Second, while several countries have embraced policies that support tertiary education by generally reducing its direct costs – via student loans or grants – our results show that cost-reduction mechanisms are only effective in specific parts of the wealth distribution and conditional on parents' (low) educational level.

The Italian context

University education and its costs

The Italian tertiary education system is structured, with few exceptions, into a first level bachelor's degree, followed by a second level master's degree. Access to university is independent from the specific track attended in secondary school, but the percentage of students attending academic secondary schools (*Licei*) and enrolling at the university is markedly higher than that of students from other tracks. Enrolment rates are relatively low: in 2016, roughly half of secondary graduates enrolled at university (Facchini et al., 2020).

Direct costs of tertiary education – i.e., tuition fees and costs related to moving out of parental home – are comparatively low vs. Anglo-Saxon countries, but higher than the EU average[1]. The likelihood and amount of tuition fees exemptions and scholarships are, to some degree, correlated with households' economic conditions. The provision of grants, though, is responsibility of regional authorities and is subject to local budget constraints. In general, public financial support is limited in coverage and amount (Contini and Salza, 2020)[2]. Living costs vary considerably across the country but are significant. Eventually, out-of-pocket costs expenditures for tertiary education are fairly high (Triventi, 2014; Usher and Cervenan, 2005). The risk and costs of failing to achieve a university degree in the mandated time-to-degree – or to not achieve it at all – can be significant (Facchini et al., 2020), and scholarships are revoked if students do not fulfil a minimum credit progression and grade point average (Contini and Salza, 2020). At the same time student loans are scarcely utilized (Perali and Barzi, 2011). Educational expansion, paired with a stagnation in the demand for qualified jobs, has led to a process of erosion of the absolute returns from education (Ballarino et al., 2016).

Within this institutional context parental wealth may constitute a relevant factor in reducing the costs of higher education and affecting the decision to enrol at university. First, wealth may contribute to financing education, especially by covering living expenses. Second, it may cushion the burden of failure costs by allowing students to absorb the growing costs of education in case the degree is not achieved on schedule. Third, household wealth may contribute to making the relatively high opportunity costs of university less substantial.

Wealth distribution

Starting from the 1990s the saving propensity of Italian families has been decreasing, and a further reduction of household savings took place during the Great Recession and the following economic

[1] According to the OECD (2014), the average tuition fee in public universities was around €1,100 per year in Italy in 2011. The average amount is lower than the US (€4,200), but it is higher than Spain (€900), France (€500), Germany and Scandinavian countries.

[2] For instance, about 19% of university students received a grant/scholarship in 2011 (OECD, 2014).

stagnation (Brandolini et al., 2006; Albertini and Ballarino, 2019). Nonetheless, Italy has still a relatively high level of private household wealth. At the same time, the distribution of wealth is more equal in Italy than in most other Western countries (Pfeffer and Waitkus, 2021).

Real assets – and especially homeownership – constitute the most important component of Italian households' wealth. Families' portfolio composition varies significantly depending on the position in the net wealth distribution. In the bottom quintile of the distribution household wealth is mainly composed by durable goods (e.g., cars, jewellery) and savings (Figure A1). Households with large negative values of wealth tend to have higher levels of both financial and real assets compared to households with small levels of net wealth. This composition suggests that large negative amounts of net wealth are associated with households' higher access to credit, and not simply with a condition of financial hardship (Killewald, 2013).

Financial wealth represents the largest share of net wealth for those household with a positive wealth and located in the first quartile of the distribution (Figure A2). The value of the home of residence is the single most relevant component of wealth for most of the Italian population, i.e., households located between the 30th and above the 90th percentile of the distribution. Therefore, in a comparative perspective, wealth portfolios of Italian families are rather illiquid. At the same time, moving toward the upper part of the distribution both financial wealth and, most importantly, other real assets (e.g., businesses, real estate) become increasingly important, accounting for more than half of the wealth owned by families located above the 95th percentile.

The link between wealth and children's university enrolment

Several previous studies have documented that parental wealth affects children's educational opportunities and attainment by influencing their skills and performance at school – i.e., primary effects, gaps in educational participation arising from social origin-based differentials in academic performances (Boudon, 1974; Shanks, 2007; Friedline et al., 2015; Dräger and Müller, 2020). Miller and colleagues (2021), for instance, provide evidence about the negative relation between family wealth and behavioural problems from early childhood to adolescence, which in turn affect children's skills and academic achievement. Orr (2003) found that net wealth has a significant positive effect on children's math scores. Similarly, Zhan (2006) reports that parental assets are correlated with their involvement in and expectations about children's education and, ultimately, with children's academic performance. Yeung and Conley (2008) confirm that family wealth, and liquid assets in particular, are strongly associated with the reading and math scores of 6- to 12-year-old American children. Next, and most importantly for our purposes, existing scientific literature indicates that household wealth has a role in affecting children's educational aspirations, costs and benefits related to reaching

different educational levels, perceived probability of succeeding in pursuing specific educational careers, and eventually in shaping children's educational choices, net of their skills. In other words, parental wealth has secondary effects on children's educational decisions and attainment– net of primary effects and other dimensions of family's SES (Boudon, 1974). Dräger and Müller (2020) document a positive relation between (non-negative) parental wealth and the likelihood of attending the Gymnasium at the secondary level in Germany vs. other tracks, net of children's competence and marks. Zhan and Sherraden (2003) show that in the US mother's assets are positively associated not only with high school attainment, but also with the mother's expectation about future children's educational careers, even after controlling for past children's grades. Jez (2014) reports that wealthier students are more likely to both attend college and enrol in selective institutions in the US, also after controlling for children's human capital, habitus, and social and cultural capital.

Previous studies have focused on two main micro level social mechanisms connecting wealth and educational decisions: a cost-reduction mechanism and a normative mechanism (Pfeffer and Hällsten, 2012; Hällsten and Pfeffer, 2017). The cost-reduction mechanism takes into consideration the fact that parental wealth provides children with fundamental support in educational choices by removing financial barriers to access to higher education, and by reducing the opportunity-costs linked to riskier and longer educational paths (Pfeffer and Hällsten, 2012). This mechanism operates through specific functions held by wealth in market economies (Frick et al., 2013): the purchasing, insurance, and autonomy function. Each specific function reduces a different type of costs – respectively – direct, failure, and indirect costs (Stocké, 2007; Pfeffer and Hällsten, 2012). The purchasing function of wealth reduces direct costs of education by providing children with the essential economic resources. In absolute terms, parental wealth helps removing barriers by financing children's university tuition fees and expenditures related with university attendance. In relative terms, the purchasing power granted by higher levels of wealth contributes to making costs less burdensome. Thus, we can expect that the more expensive it is to pursue a university career, both in absolute and relative terms, the more consequential household wealth will be on children's enrolment. The insurance function of wealth refers to its potential use, more than its actual utilization. In other words, parental wealth helps cushioning the potential socio-economic consequences of negative outcomes in education. It provides children with a "real and psychological safety net" (Shapiro, 2004) that helps mitigate the consequences of failing to complete higher education, also by allowing children to have a "second chance" (Bernardi, 2012). Next, the insurance function refers also to the fact that household wealth incentivizes riskier – but also more ambitious and remunerative – educational choices. The autonomy function of wealth shrinks the (anticipated) opportunity costs of education. The financial support guaranteed by parents' economic resources provides children with some degrees of freedom from

labor market relations. The consumption potential (Spilerman, 2000) granted by parental wealth protects children from being pressured to immediately enter the labor market after completing secondary school. Indeed, households at the bottom of the wealth distribution face higher opportunity-costs since any additional source of income may be crucial to preserve or improve their living standards.

With regards to the second mechanism, it is argued that parental wealth may influence children's educational decisions by fostering pro-education norms, expectations and beliefs: similarly to what has been observed for parents' ISEI and other SES measures (Abbiati and Barone 2017; Crosnoe and Muller, 2014; Ceron et al. 2022), parents with higher net wealth may overestimate economic returns of tertiary education and, eventually, push their offspring to enrol in higher education to preserve family wealth and socioeconomic success (Hällsten and Pfeffer, 2017). This normative function of wealth is partly related with the downward mobility aversion mechanism: it is argued that parent's support children's educational career – and make conspicuous financial transfers to them – with the main aim of avoiding their children to occupy a lower position in the social stratification system (Breen and Goldthorpe, 1997; Albertini and Radl, 2012). In addition, as suggested by Conley (2001), the higher socio-economic status granted by family wealth may contribute to generating a sense of educational entitlement. Different studies have reported evidence underlying the importance of this specific mechanism. Van de Werfhorst and Hofstede (2007), for example, show that while parents' cultural capital affects offspring school performance (primary effects), relative risk aversion affect schooling ambitions, thus being important to explain secondary effect of parents' SES. This second finding is also confirmed by the study of Holm and Jæger (2008) on the educational decisions of Danish students and their families. Considering a different domain – i.e., *inter-vivos* financial transfers – Albertini and Radl (2012) document that, when a child reaches the same (or higher) educational level than that of their parents, economic support from the latter to their offspring decreases.

Theoretical framework and research hypotheses

To formulate empirically testable hypotheses about the role played by parental net wealth – and of two of its main components, i.e., gross financial and real assets[3] – in affecting university enrolment, we rely on the Subjectively Expected Utility (SEU) model (Esser, 1999; Becker and Hecken, 2009). The SEU model specifies three assumptions: a) the higher is the perceived academic ability of the

[3] Building on the definition proposed by Burkhauser and Weathers (2001) we define financial wealth as the sum of the value of all liquid assets, and real wealth as the sum of the value of all tangible non-liquid assets. The examination of household debt goes beyond the interest of this work.

student, the higher will be the subjective probability to enrol and succeed in further educational levels; b) the likelihood of individuals to enrol in higher educational pathways depends on their – or their parents' – aversion towards social demotion; c) pupils would decide to pursue higher educational levels if perceived benefits of education outweigh expected costs (Becker, 2003; Becker and Hecken, 2009). The first of these assumptions refers to potential primary effects of wealth – which are beyond the scope of the present study. The second assumption relates to the normative function of wealth, while the third is connected with costs-reduction mechanisms since the purchasing, insurance and autonomy functions of wealth contribute to reducing both the relative and the absolute importance of educational costs.

Adding to previous studies of the topic, we argue that not all wealth is the same and, therefore, the relative importance of the cost-reduction and normative mechanisms is likely to vary depending on differences along two dimensions characterising household wealth: a) the specific definition or component of wealth considered; b) the relative location of the household in the national wealth distribution. Furthermore, in line with the downward mobility aversion hypothesis, we hypothesize that the role of the cost-reduction mechanism in affecting enrolment to tertiary education varies depending on parents' educational level.

In terms of our research hypotheses, we begin with the most general and basic one arguing that, in line with findings from other countries, in Italy too household total net wealth is a significant and independent predictor of enrolment in higher education (*H1*). Thus, we expect that even after controlling for relevant covariates associated with parental SES, children's aspirations and perceived abilities – as measured, respectively, by parents' education, social class and income, and child's upper secondary track and graduation mark – household net wealth shows a positive and significant association with the likelihood to enrol in tertiary education.

Next, we explore evidence related to the two main micro-level social mechanisms that have been argued to be at the basis of these results: a cost-reduction and a normative mechanism. We do so by leveraging the potential heterogeneity in the association between wealth and child's university enrolment at different levels of wealth, and for different wealth components. With regards to the cost-reduction mechanism, we argue that the economic support of parents in reducing university costs is likely to be fulfilled by both financial and real assets. On the one hand, the economic support to direct costs of education – which requires an effective mobilisation of economic resources – is achieved by financial wealth. At the same time, the cushion of both anticipated indirect and failure costs is realised by total net worth, since their evaluation is based on ex-ante expectations which do not necessarily require a transfer of resources. We maintain that evidence of a positive association between university enrolment and financial wealth is necessary to support the relevance of the cost-reduction mechanism.

This because: a) liquid assets are quickly mobilized and are essential to overcome financial barriers in university access; b) financial assets are specific to the cost-reduction mechanism, while they are less likely to be related to the normative mechanism, differently from real wealth. In addition, we argue that the cost-reduction mechanisms should be more consequential for children of households located at the bottom of the (positive) net wealth distribution[4]. In other words, we expect a threshold effect: the effect of higher amounts of wealth in reducing relative costs of education is expected to marginally decrease at some point of the wealth distribution. Although absolute costs of enrolling at university and wealth may be positively related – e.g., with students from richer families spending more money for their accommodation and consumption – we suggest that this association decreases at increasing wealth levels, and so do the effect of the cost-reduction mechanism. It follows from these arguments that our second hypothesis is that parental wealth shows a positive and significant association with university enrolment for the financial component of wealth and that the association is positive in the lower (positive) part of the wealth distribution (*H2*), while no specific expectation is formulated for the negative part of the distribution.

With regards to the normative function of wealth, in line with what suggested in previous literature (Orr, 2003; Hällsten and Pfeffer, 2017, Dräger, 2021) we foresee that higher levels of real wealth are likely to be associated with positive orientations towards tertiary education. Differently from income and financial wealth, real assets – such as housing in prestigious neighbourhoods, family businesses, or artworks – constitute a signal of status distinction (Orr, 2003) which may contribute to creating a sense of educational entitlement (Conley, 2001). On the other hand, liquid assets translate less often into a specific signal of social status. Our third hypothesis, therefore, is that household's real wealth shows a positive and significant association with university enrolment, and that this association is significant at the top of wealth distribution (*H3*).

Next, we focus on the role of parents' downward mobility aversion mechanism. Besides influencing children's educational choices through norms and expectations, according to Becker and Hecken (2009) the downward mobility aversion mechanism also produces secondary effects by generating disparities in the cost-benefits evaluation of university enrolment among social groups: the higher the perceived risk of status demotion, the lower the relevance of relative costs for the educational decision. In other words, the same level of wealth differently affects educational decisions depending on the marginal utility assigned to educational levels (Hällsten and Pfeffer, 2017). Following on Breen and Yaish (2006), we assume that for individuals with a higher socio-economic

[4] Although the design of grant and scholarship policies produces a negative correlation between tuition fees and household wealth, the relative costs of education are expected to decline at increasing levels of family wealth: tuition fees are relatively low for the wealthier and living costs are seldom fully covered by grants for economically disadvantaged households.

background, the marginal utility of tertiary education is non-declining because they have not already attained the minimum threshold level of education *(T)* minimizing their probability to end up in a worse class location compared to their parents. Conversely, for students with a lower socio-economic background, the marginal utility of tertiary education is assumed to be declining. Given that relative costs of education are an inverse function of household economic resources (Breen and Goldthorpe, 1997; Stocké, 2007), it follows that lower levels of wealth – all other things being equal – would exert a stronger negative effect on the enrolment in tertiary education for individuals with less educated parents. Our fourth hypothesis, therefore, reads as it follows: parental wealth is more consequential for children's choice of enrolling at university once they have already achieved their threshold level of education T which minimizes their chances of experiencing status demotion (*H4*).

However, we can have two different outcomes both providing some support to this latter hypothesis: following on Need and DeJong (2001) and Davies et al. (2002), it can be expected that children aspire to achieve the same educational level attained by parents. On the other hand, building on the inflation of credentials hypothesis (Collins, 1979), we can also find that children aspire to attain a higher educational level than their parents, since the same educational credentials no longer guarantee an occupation at least as good as that of their parents. The first of these two versions of hypothesis 4 (*H4a*) would be supported if the interaction between parental wealth and parental education shows a positive slope for children whose parents have a degree up to and including an upper secondary level, and a flat or less steep slope for children whose parents achieved a tertiary degree. Conversely, the second version of hypothesis 4 (*H4b*) would be supported if the interaction shows a positive slope only for children of parents with a lower secondary degree or less, and a flat or a less steep slope for children of parents with higher degrees.

Data, variables, and methods

Data

The data utilized in the empirical analyses are from 6 cross-sectional waves of the Survey on Household Income and Wealth, collected between 2006 and 2016. The SHIW provides detailed information on Italian households' financial accounts as well as information about respondents' demographics, education, and occupational conditions. The SHIW collects this information for both parents and their co-residing children[5]. Our analytical sample consists of 2946 individuals reported

[5] A description of analytical sample and data is provided in the Appendix, Section B.

as children, aged between 19 and 23 years and who have already obtained an upper secondary degree at the time of the interview[6].

Variables

Our dependent variable is a dummy specifying whether an individual has enrolled or not in tertiary education. The main independent variable utilized in the analyses, household wealth, is operationalized as total household net worth – i.e., the sum of financial and real assets values minus liabilities[7] – of all household members. Since wealth distribution is significantly skewed to the right, we transform total per capita household net wealth by using the Inverse Hyperbolic Sine (IHS) transformation and we apply a scale parameter θ=0.0001[8] (Pence, 2006; Friedline et al., 2015). This transformation is utilized to include zero and negative values, while smoothing the distribution for values near the zero. The scale parameter is used to cope with the unplausible distributive assumptions related to logarithmic or logarithmic-like transformations (Pence, 2006). In line with our hypotheses, in some of our empirical analyses we distinguish two main components of total household wealth: gross financial and real wealth. In both cases we utilize the IHS transformation (with θ=0.001 for financial wealth and with θ=0.0001 for real wealth[9]). To adjust for household size effects, we express financial wealth in per capita amounts since educational costs are likely to produce negligible economies of scale on liquid economic resources. We do not adjust real wealth by household size, given that the normative effect of wealth is not likely to vary depending on the number of household members. We employ the unadjusted measure for net wealth as well, since real wealth constitutes the major component of households' portfolio by far (Figure A2)[10]. For both net and real wealth household size is introduced as a control variable in the regression models.

Our hypotheses refer to the role of household wealth, over and above other measures of family's SES; thus, in our analyses we control the association between wealth and university enrolment for relevant dimensions of family's SES: (a) parental education (lower secondary or lower, ISCED 2 or lower; upper secondary, ISCED 3; tertiary or more, ISCED 5 or higher); (b) social class, using a revised 3-category version of the EGP class schema, and separately identifying pensioners and inactive individuals (service class I and II; self-employed; manual and routine non manual workers;

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[6] The SHIW includes a small panel component which is not sufficient to perform panel data analyses, thus we only keep one observation per individual. Panel observations are removed according to the following criteria: age minimization and maximization of the number of observations in which the individual is enrolled in tertiary education.

[7] Wealth and income measures are weighted for the Consumer Index of Prices, set at 2016 price levels. Missing values on wealth and income are imputed by the data provider (Bank of Italy) with single imputation.

[8] For a discussion of θ parameters identification strategy see the Appendix, Section C.

[9] Financial and real wealth show different values of the θ parameter since the two variables have a different distribution (see the Appendix, Section C). The specification of different θ parameters does not undermine the comparability of results since we rely on predicted values and t-tests to interpret our findings.

[10] Robustness checks with different household size adjustments are provided in the Appendix, Section F.

pensioner; inactive)[11]; (c) household equivalent disposable income[12]. Next, among our controlling variables we include information about upper secondary school track, defined in three categories: academic, vocational, and technical. High school track plays a fundamental role in stratifying students' educational choices in Italy (Barone et al., 2018; Contini and Salza, 2020) and its inclusion allows us to control for important unobserved compositional effects, including educational aspirations, antecedent investments in skills and competencies, and peer effects[13]. Furthermore, to account for potential primary effects of wealth, as a proxy of (perceived) academic ability, we use the child's final graduation mark in upper secondary school. School results are interpreted as an indicator of the probability to succeed in tertiary education by students and their families (Breen and Goldthorpe, 1997; Barone et al., 2018). To account for systematic differences in grading standards across tracks, we standardize the graduation mark by track. Finally, we introduce additional controls (baseline controls) in our models: parents' nationality, marital status, and age; child's sex, age, macro-region and size of the municipality. Since our observational window includes both the financial and sovereign debt crises (2007-2010), we specify the year of interview to account for possible period effects.

In the following analyses, we adopt a stepwise approach by including our covariates in three blocks. In the first block (M1, MF1, MR1: baseline model) only our measures of wealth and the baseline controls are specified. In the second block (M2, MF2, MR2: + parental SES) we add parental SES variables, as measured by parental education, social class, and income. Finally, in the third block (M3, MF3, MR3: Full model) we also include measures of educational ability, as measured by high school track and standardized graduation mark. Furthermore, in the Full model for financial and real wealth, we also control for the other component and for household debt.

4.5.3 Methods

The main empirical analyses rely on a set of non-parametric regression models that, by using natural splines, account for the variation of the association between wealth and university enrolment along the national wealth distribution. Non-parametric regression models are particularly suited for our purposes since they do not make assumptions about the functional form of the association between our dependent and independent variables. In our case we specify the following model:

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[11] Adopting the dominance criterion (Erikson, 1984), when parents do not have the same class/educational level we consider the highest social class and educational level.

[12] We define household income as the sum of yearly disposable income of all household members except for the observation in our analytical sample (i.e., child). Since children who do not enrol in tertiary education are more likely to work, the inclusion of their incomes in the variable household income would introduce endogeneity. We use the square root of the number of household members as equivalence scale (Canberra Group, 2011; Cowell, 2011).

[13] Due to well-known selection mechanisms – i.e. children from higher socioeconomic backgrounds are more likely to enrol in academic tracks vs. other tracks – controlling for secondary school track takes out that part of the "wealth effect". The following estimates, therefore, should be read as the net association between parental wealth and university enrolment after selection and completion of a specific secondary education track.

$$y_i = g(x_i) + \beta_i(Z_i) + \varepsilon_i$$

Where $g(x_i)$ is an unknown function modelling the (non-parametric) association of variable x, Z_i is a vector of covariates which are linearly introduced in the model, and ε_i is the error term. Since we are interested in testing a non-linear association exclusively for wealth variables, control variables are linearly modelled. In our models the $g(\,)$ function is defined in the form of natural splines. Natural splines allow to combine piecewise splines – which make the regression slope to change on different segments of the distribution of the independent variable – with a polynomial specification. The result is a smoothing function which allow to model both non-linear associations within segments delimited by knots, and sudden changes in the regression slope (De Boor, 2001)[14]. The optimal functional form of $g(x_i)$ is given by the combination of the number and location of knots minimizing the cross-validation criterion. A third-order polynomial is specified since it provides a good balance between flexibility and parsimony when fitting the curve.

To provide a substantive interpretation of the results, we compute predicted probabilities at different levels of our independent variables. In addition, to check to what extent differences in predicted probabilities are significant along the wealth distribution, we compute discrete changes in predicted probabilities by adopting inflection points identified by non-parametric models as reference values. Finally, to formally test our first three hypotheses (*H1*, *H2*, *H3*), we perform a set of Linear Probability Models (LPMs) with linear piecewise splines, since predicted probabilities do not allow to test the statistical significance of the association for different segments of wealth distribution. Again, we locate the knots at each inflection point identified by non-parametric models[15]. Finally, to test *H4a* and *H4b*, we perform a LPM while including an interaction term between total net household wealth and parental education[16].

Results

How much wealth is needed to boost children's university enrolment?

We start by asking if, similarly to what observed in other countries, also in Italy net household wealth is associated with a significantly higher probability of enrolling at university, over and above other dimensions of family's SES. Next, adding to previous studies, we analyse the extent to which this relation changes along the national wealth distribution.

[14] To perform our analyses, we use the *npregress series* command available in STATA software.
[15] This model specification is also used to perform robustness checks.
[16] In this case, we do not specify any non-parametric function nor any spline: since parental wealth is asymmetrically distributed among levels of parental education, splitting the wealth distribution results in too few observations for some combinations of parental education categories and wealth splines. Nevertheless, we provide robustness checks in the Appendix, Figure E2. Results are consistent with the linear specification.

Figure 1 reports the predicted enrolment rates along the net wealth distribution resulting from non-parametric models[17]. The baseline model highlights a U-shaped relation between household wealth and university enrolment. Children from households with high levels of negative wealth show higher enrolment rates compared to individuals from household with low levels of both positive and negative wealth. Moving up along the wealth distribution, predicted enrolment rates rise sharply with a difference of nearly 30 percentage points between the two extremes of the positive segment of the distribution. However, when introducing parental SES and children's academic ability measures, the pattern changes considerably. The size of the regression slopes decreases in all segments of the distribution, and the sign becomes even negative for high wealth values. More precisely, two inflection points emerge: the first is located around €1,000 (P5) and the second is located at €160,000 (P35). Within this interval, the positive association between parental net wealth and child enrolment probability is significant ($p<0.01$), as highlighted by the piecewise regression (Table 2). The discrete change in predicted probabilities between P5 and P35 amounts to 9 percentage points, and it is significant with CIs computed at 95% level. For both the first segment (i.e., negative wealth) and the third segment (i.e., high wealth), the relation appears to be negative and significant ($p<0.05$, Table 2). Despite the significance of the relation in the piecewise linear spline model, results for these latter segments should be interpreted with caution. Differences in predicted probabilities for negative values of net wealth are marginal (2 percentage points), and discrete changes at the top of the distribution vs. P35 are not significant (95% level CIs), except for very high level of net wealth (€1.5 million, P96). These results provide two interesting insights. First, they suggest that high levels of debt do not necessarily correlate with a situation of financial hardship, but rather with a condition of economic potential related to the possibility of accessing the credit market (Killewald, 2013). Second, they provide some support to the hypothesis of a demotivation effect of wealth (Müller et al., 2020): high levels of wealth may reduce the need to obtain a degree, since wealth itself can act as an insurance against downward mobility.

Figure 1. Left panel: predicted children's enrolment rate at university by household net wealth. Right panel: discrete change in predicted enrolment rate at university (full model) by household net wealth values compared to €160,000 (P35, inflection point). Non-parametric regression with natural splines. CIs at 95% level

[17] In all graphs reporting predicted probabilities, values of all other covariates are set at their mean.

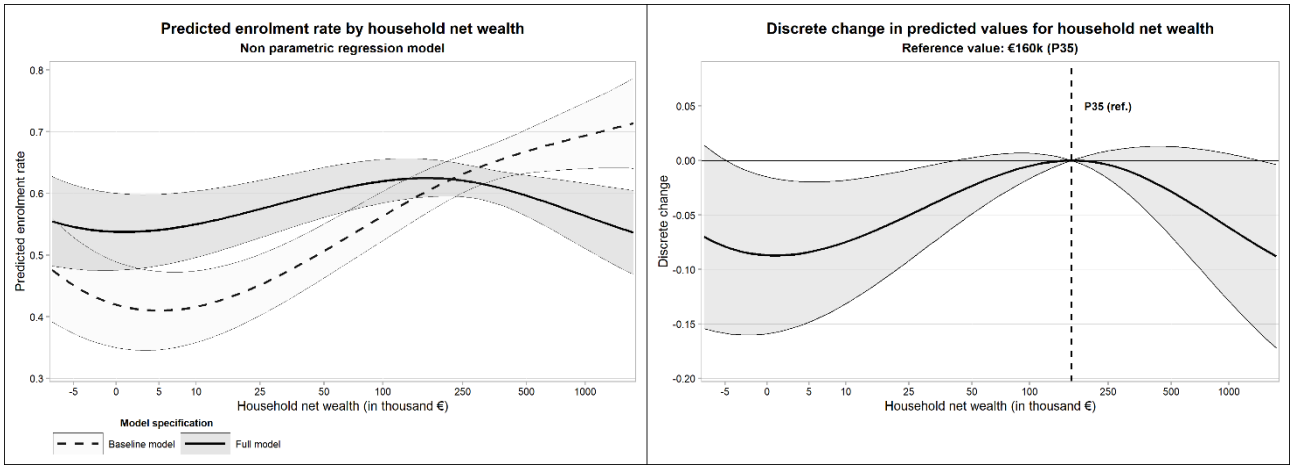


Table 2. Beta coefficients of net wealth splines from LPM with linear piecewise splines. Two knots are specified (P5 and P35)

Outcome: Enrolment at University	**M1** **Baseline model**	**M2** **+ Parental SES**	**M3** **Full model**
IHS net wealth			
1st spline (min-P5)	$-2.09 \cdot 10^{-5}$ ***	$-1.46 \cdot 10^{-5}$ ***	$-8.95 \cdot 10^{-6}$ **
	$(5.26 \cdot 10^{-6})$	$(5.11 \cdot 10^{-6})$	$(4.36 \cdot 10^{-6})$
IHS net wealth			
2nd spline (P5-P35)	$6.86 \cdot 10^{-6}$ ***	$4.11 \cdot 10^{-6}$ ***	$3.43 \cdot 10^{-6}$ ***
	$(1.38 \cdot 10^{-6})$	$(1.38 \cdot 10^{-6})$	$(1.18 \cdot 10^{-6})$
IHS net wealth			
3rd spline (P35-max)	$5.63 \cdot 10^{-6}$ ***	$-2.68 \cdot 10^{-6}$	$-3.77 \cdot 10^{-6}$ **
	$(2.06 \cdot 10^{-6})$	$(2.08 \cdot 10^{-6})$	$(1.90 \cdot 10^{-6})$
R^2	0.072	0.163	0.324
Covariates	YES	YES	YES
Observations	2,946	2,946	2,946

Robust standard errors in parentheses,
*** p<0.01, ** p<0.05, * p<0.1
Coefficients for controlling variables are omitted. Full regression results are reported in table D1 of the Appendix

Which type of wealth does affect child's university enrolment?

We have shown above that, similarly to what found in other countries, in Italy household wealth has a positive effect on children's enrolment at university, over and above other family SES characteristics and child's academic ability (*H1*). However, we have also found that this positive relation exists for families located between the 5th and 35th percentile of the distribution, and that the effect progressively decreases, and even become negative, at higher levels of wealth. We interpret

this as evidence of a threshold effect: the cost-reduction mechanism (*H2*) operates only for households with a positive net wealth and located in the lower part of the distribution.

To further examine whether parental wealth fosters children enrolment at university by reducing relative costs (*H2*) and/or by promoting educational norms (*H3*), we now take into consideration the association between our outcome and two main components of household wealth: financial and real wealth. The baseline model specifications show a monotonically increasing association between university enrolment and both financial and real wealth (Figures 3 and 5). However, the full model specifications reveal different patterns and effect sizes for the two wealth components. Considering financial wealth, the predicted enrolment rate increases up to the 50th percentile of the distribution (corresponding to €2,300 per capita financial wealth), and slightly declines thereafter. Below the median, the association is significant ($p<0.01$, Table 4), and the discrete change in predicted probabilities between children from households with zero liquid wealth and those located at P50 amounts to 10 percentage points and it is statistically significant (95% level CIs, Figure 3). Concerning real wealth, the predicted enrolment rate increases up to the 30th percentile (€130,000 real wealth) and diminishes thereafter. In this latter case, however, the difference between those with zero real wealth and those located at P30 amounts to less than 7 percentage points and it is not statistically significant (95% CIs, Figure 5).

These results indicate that the cost-reducing effect of wealth influences Italian social stratification and its transmission between family generations. We document a positive and significant association for the financial component, specifically at the bottom of the distribution (i.e., up to the median). Differently, our results do not support the hypothesis that high levels of household real wealth affect children's educational aspirations (normative mechanism, *H3*). On the contrary, the regression coefficients suggest that starting from around P30 higher levels of real wealth are associated with a lower enrolment rate, although this negative relation is only marginally significant ($p<0.1$, Table 6).

Figure 3. Left panel: predicted children's enrolment rate at university by per capita financial wealth. Right panel: discrete change in predicted enrolment rate at university (full model) by per capita financial wealth compared to €2,300 (P50, inflection point). Non-parametric regression with natural splines. CIs at 95% level

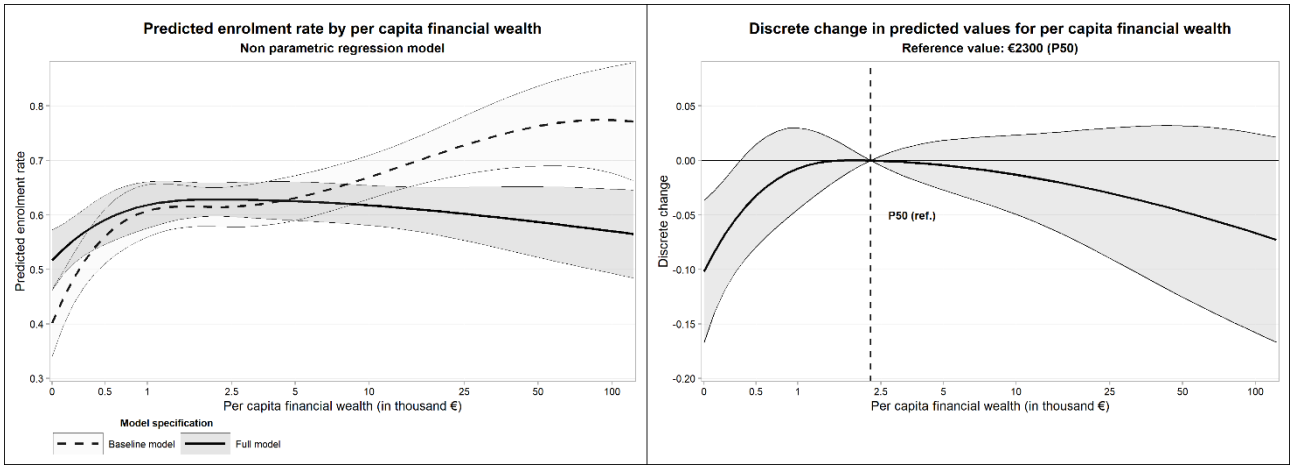


Table 4. Beta coefficients of financial wealth splines from LPM with linear piecewise splines. One knot is specified (P50)

Outcome: Enrolment at University	**MF1 Baseline model**	**MF2 + Parental SES**	**MF3 Full model**
IHS financial wealth			
1st spline (min-P50)	$1.17 \cdot 10^{-4}$***	$6.74 \cdot 10^{-5}$ ***	$6.37 \cdot 10^{-5}$ ***
	$(2.69 \cdot 10^{-5})$	$(2.66 \cdot 10^{-5})$	$(2.43 \cdot 10^{-5})$
IHS financial wealth			
2nd spline (P50-max)	$3.16 \cdot 10^{-5}$ **	$-8.49 \cdot 10^{-6}$	$-1.44 \cdot 10^{-5}$
	$(1.37 \cdot 10^{-5})$	$(1.35 \cdot 10^{-5})$	$(1.21 \cdot 10^{-5})$
R^2	0.065	0.161	0.327
Covariates	YES	YES	YES
Observations	2,946	2,946	2,946

Robust standard errors in parentheses,
*** p<0.01, ** p<0.05, * p<0.1
Coefficients for controlling variables are omitted. Full regression results are reported in table D2 of the Appendix

Figure 5. Left panel: predicted children's enrolment rate at university by household real wealth. Right panel: discrete change in predicted enrolment rate at university (full model) by household real wealth values compared to €130,000 (P30). Non-parametric regression model with natural splines. CIs at 95% level

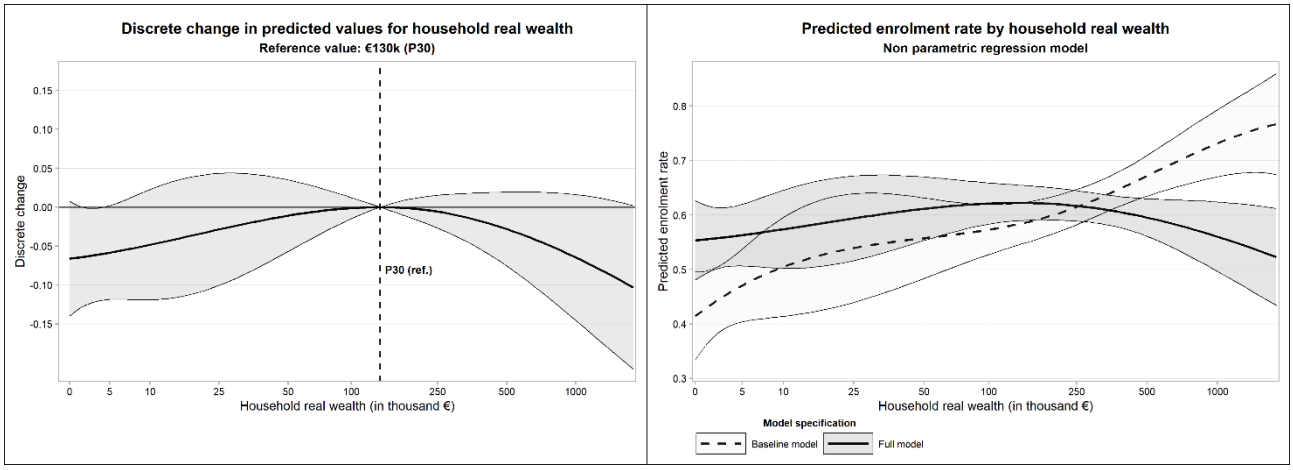


Table 6. Beta coefficients of real wealth splines from LPM with linear piecewise splines. One knot is specified (P30)

Outcome: Enrolment at University	**MR1** **Baseline model**	**MR2** **+ Parental SES**	**MR3** **Full model**
IHS real wealth			
1st spline (min-P30)	$4.46 \cdot 10^{-6}$ ***	$2.78 \cdot 10^{-6}$ **	$2.16 \cdot 10^{-6}$ **
	$(1.25 \cdot 10^{-6})$	$(1.20 \cdot 10^{-6})$	$(1.07 \cdot 10^{-6})$
IHS real wealth			
2nd spline (P30-max)	$6.66 \cdot 10^{-6}$ ***	$-1.77 \cdot 10^{-6}$	$-3.32 \cdot 10^{-6}$ *
	$(2.04 \cdot 10^{-6})$	$(2.06 \cdot 10^{-6})$	$(1.97 \cdot 10^{-6})$
R^2	0.066	0.160	0.327
Covariates	YES	YES	YES
Observations	2,946	2,946	2,946

Robust standard errors in parentheses,
*** p<0.01, ** p<0.05, * p<0.1
Coefficients for controlling variables are omitted. Full regression results are reported in table D3 of the Appendix

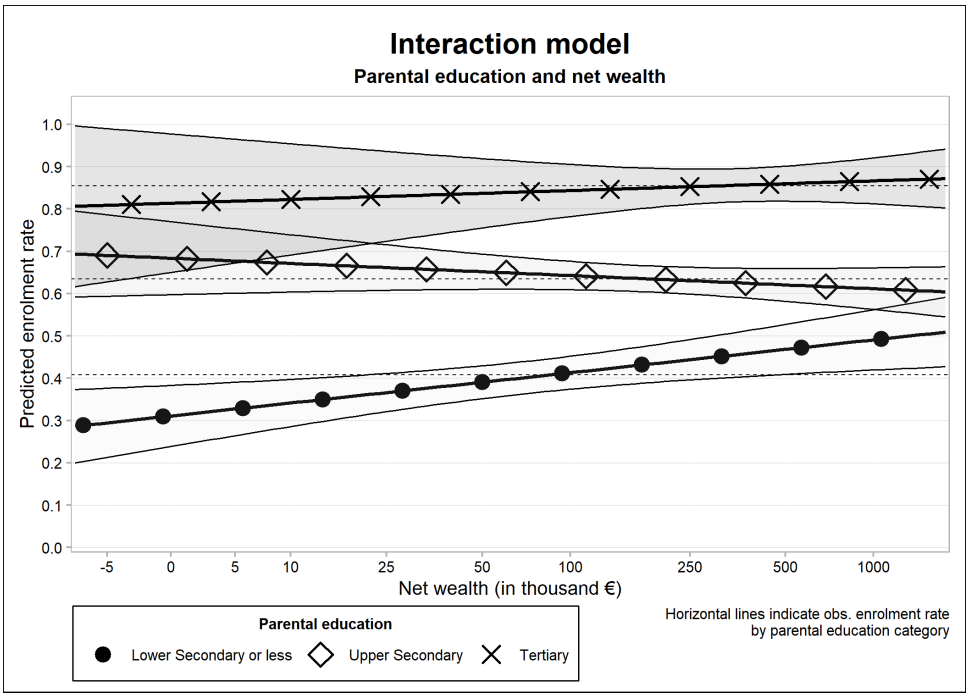
How the effect of household wealth varies by parents' education

To test our two last hypotheses (*H4a* and *H4b*), we perform a LPM by specifying an interaction between household net wealth and parental education.

Figure 7 shows the predicted enrolment rates in tertiary education computed from this last regression model. Children whose parents attained a lower secondary degree or less increase their enrolment probability with increasing levels of family wealth. These children have an average predicted enrolment rate equal to 41% but there is substantial heterogeneity around this mean,

depending on household wealth: for instance, children of low educated parents with a household wealth equal to 0 have a university enrolment rate equal to 30%; differently, those living in families with 250 thousand euros of net wealth have a predicted enrolment probability of 44%. Conversely, household wealth does not seem to play a significant role for children whose parents have an educational level equal or higher than upper secondary school. Similar results are obtained also when considering only the financial component of household wealth (Figure E4)[18].

Figure 4.7. Predicted enrolment rates of (IHS) net worth by categories of parental education. Horizontal dashed lines indicate average enrolment rate by parental education: lower secondary or less (41%); upper secondary (64%), tertiary (86%). CIs at 95% level



Therefore, the main source of risk for children from families with intermediate or high educational levels may be represented by social demotion. Consequently, the decision to enrol, or not, at university depends more on children's and their families' aspirations than on the amount of wealth owned by their parents. In other words, the normative mechanism seems to operate primarily through parental education rather than wealth. Financial and total wealth, on the contrary, are key in shaping enrolment decisions of children from lower educational backgrounds: higher relative costs do matter for educational decisions. Higher levels of parental wealth may support children's educational choices

[18] In case of financial wealth differences between parental educational levels appear to be even more pronounced. For children of parents with a Lower secondary degree or less, the effect of financial wealth is not only significant in absolute terms (AME) but also relatively to children of parents with an Upper Secondary and Tertiary degree (beta coefficients, Table E3, Appendix).

by reducing the financial burden of direct costs, limiting the relevance of foregone earnings, and cushioning the negative consequence linked to a potential failure.

Overall, these results support *H4b*, but not *H4a*. Differently from studies arguing that children may be oriented to attain the same educational level of their parents (Need and DeJong, 2001; Davies et al., 2002), we find that the reference threshold level of education is higher than parents' highest degree, thus adjusting expectations to the situation emerging after decades of educational expansion. This finding is in line with the inflation of credentials hypothesis (Collins, 1979): not only children of parents with a tertiary degree, but also children whose parents attained an upper secondary degree, may perceive the achievement of a tertiary degree an important step to avoid social demotion[19].

Conclusions

Scholars' attention to wealth as a relevant dimension of social stratification has been considerably growing (Pfeffer and Waitkus 2021; Hällsten and Thaning, 2022). In this article we have outlined that, similarly to other countries, also in Italy household wealth is positively and significantly associated with children's enrolment at university, net of other dimensions of parents' SES and children's academic ability.

The analyses also shed light on the role of different levels and types of wealth: when it comes to facilitating children's enrolment at university not all wealth is the same. Evidence of a threshold effect emerges: the positive association between wealth and university enrolment is significant for non-negative amounts of total net wealth and up to the 35th percentile of the distribution, with a difference of 9 percentage points between children from households with zero net wealth and those located at the 35th percentile. This size of the wealth gap in tertiary education enrolment is similar to what Pfeffer (2018) observed in the US context (10 pp) by comparing children from households located at the 1st and at the 4th quintile of the wealth distribution. Moreover, we found a negative relation for both negative amounts of net wealth and at higher levels of wealth than P35. Although robustness checks indicates that these two latter results should be taken with caution, they provide interesting insights which resonate with prior research on the topic. Results on negative wealth suggest that higher levels of negative wealth signal a condition of economic potential granted by the possibility of accessing the credit market (Nam and Huang, 2009; Killewald, 2013), while findings on higher levels of wealth supports the argument by Müller and colleagues about the existence of a demotivation effect of wealth (Müller et al., 2020) vis-à-vis child's educational investment. We also show that the relation between wealth and attending tertiary education varies between wealth components. In line with Nam and Huang's (2009), we document a positive association between university attendance and gross

[19] Robustness checks for these analyses are reported in Appendix F.

financial wealth. However, while Nam and Huang documented a linear effect, we show evidence of a threshold effect: the association is positive and significant up to the median, with a difference of 10 percentage points between 0 financial wealth and P50. After this threshold, the association becomes not statistically significant. When we consider gross real wealth, instead, we find a weak positive association with university enrolment up to the 30th percentile, that becomes negative in the upper part of the distribution. These results partially resonate with those by Lovenheim (2011).

We discuss two main mechanisms through which parental wealth may contribute to producing the observed secondary effects in education: a cost-reduction and a normative mechanism. Our results suggest that, in the lower positive part of the distribution the cost-reduction effect of wealth plays a key role in shaping university access in the Italian context, over and above other household's SES characteristics. On the other hand, the normative function of wealth does not seem to be pivotal in orienting children's educational choices, its effect seems to largely overlap with other dimensions of parental SES, including parental social class, income, and – especially – education. We have also found support for the hypothesis that a trade-off between the relevance of aspirations and educational costs may exist: the higher the perceived risk of experiencing social demotion, the lower the relevance of relative costs of education for the decision to enrol at university. The association between university enrolment and parental wealth is not statistically significant for individuals whose parents achieved an upper secondary or tertiary degree, whereas it is strongly positive for students with a lower educational background. This result is in line with the inflation of credentials hypothesis (Collins, 1979). The high relative costs bore by students who cannot rely on the support provided by parental economic resources, if not compensated by strong educational aspirations, may represent a serious barrier to accessing university.

These findings are subject to some limitations. One is the lack of direct measures of the dimensions formulated in the theoretical model. In our analyses we exclusively relied on indirect measures for the normative and cost-reduction mechanisms of wealth, for social demotion aversion, and for perceived academic ability. A further drawback of our regression models is that, due to SHIW data limitations, the measurement of some controlling variables is not fully satisfactory. This applies to our classification of parent's occupational social class. Another limitation is methodological: since we rely on cross-sectional data, we observe parental wealth only after the educational decision has been made. This limitation raises a reverse causality concern. However, it would lead to an underestimation of the association between parental wealth and our dependent variable. Finally, it should be noted that we say nothing about the "survival" of enrolled students into tertiary education. Dropouts are frequent in the Italian university system, and are systematically correlated with both family socio-economic background and the specific university track considered.

Despite these limitations, findings from the present study offer some useful indications for future research and policies aiming at increasing university enrolment. First, we provide evidence, that also in a context like Italy – characterized by a comparatively low level of wealth inequality – parental wealth has a positive effect on child's university enrolment, even after controlling out the effect that parental wealth already exercises in the previous steps of child educational career, such as the selection and completion of an academic track at the level of upper secondary education. Next, our results suggest that studies addressing the association between household wealth and children's educational opportunities need to recognize that the relation may differ, significantly, along the wealth distribution and, in addition, that this heterogeneity vary between different components of wealth. Finally, the fact that wealth is a key factor shaping the decision to enrol at university only among children of low educated parents, clearly offers useful guidance about the design of public policies aiming at removing the economic barriers to access to tertiary education in Italy.

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Appendix: supplementary materials to chapter 3

A. Wealth distribution

Figure A1. Households' relative distribution of detailed typology of assets across net wealth distribution. Authors' calculations based on SHIW data

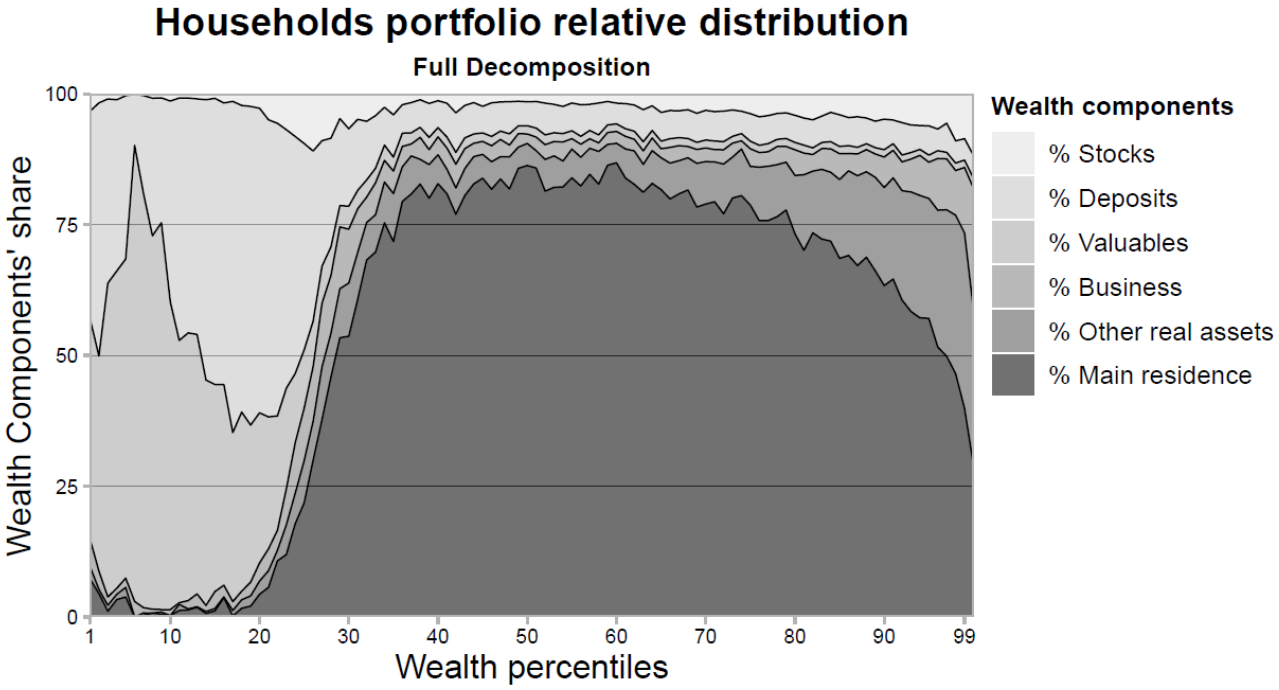


Figure A2. Average value of wealth components (real wealth, financial wealth, and debt) by net wealth percentiles. Authors' calculations based on SHIW data

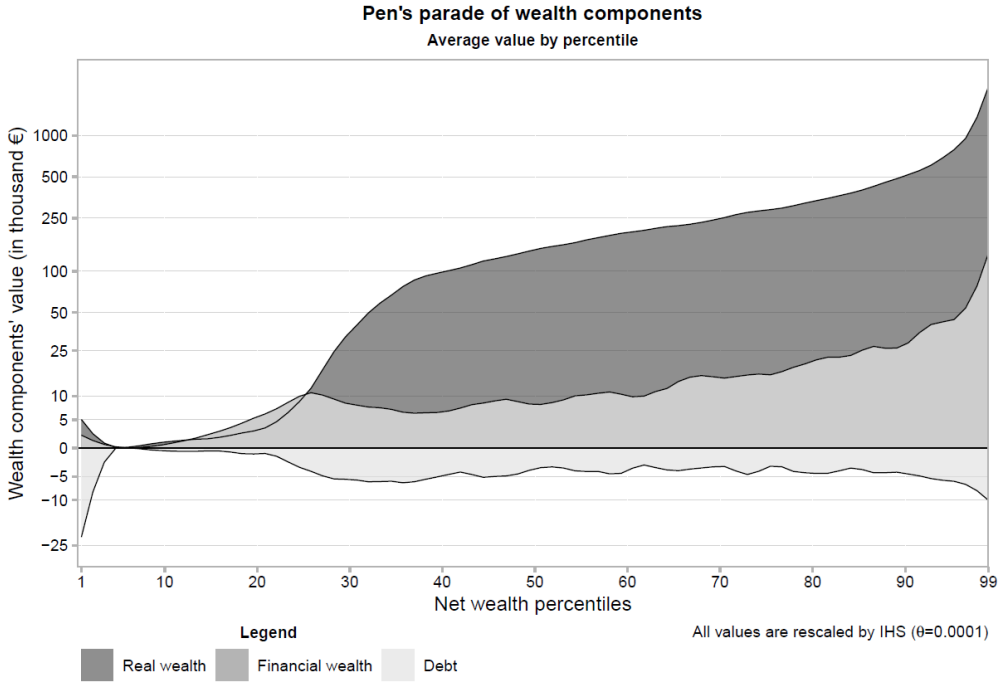
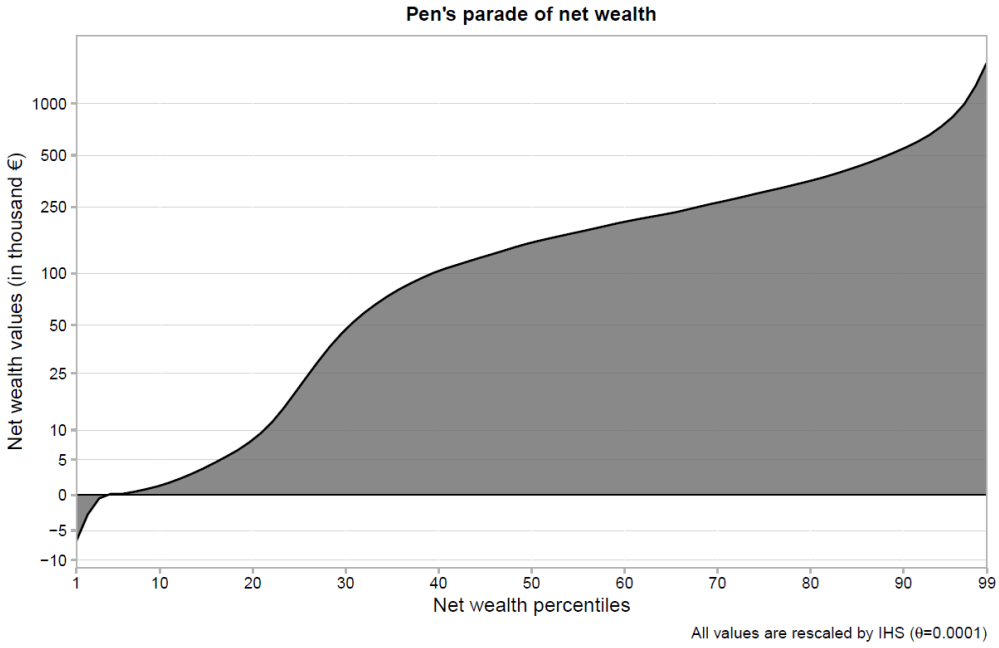


Figure A3. Pen's parade of net wealth, net wealth values by net wealth percentiles. Authors' calculations based on SHIW data



B. Sample descriptive statistics

The definition of age boundaries to 19-23 years range for the inclusion into the analytical sample is the result of the need for a balance between two opposite methodological issues. On the one hand, the inclusion of older observations (e.g., 24, 25, etc.) magnifies the reverse causality bias stemming from the (primarily) cross-sectional design of the survey, which does not allow to observe parental wealth prior to the end of upper secondary school. On the other hand, the restriction to younger observations (e.g., 21-22) does not allow to capture individuals who are likely to enrol later in life, and severely shrinks the sample size.

In our analytical sample, selection due to individuals living outside the parental home is not problematic since less than 3% of individuals that could be included in the analytical sample (i.e., aged between 19 and 23 years with an upper secondary degree) reside outside the parental household (Table B1). This low proportion is due to both the broad definition of household members applied in SHIW – i.e., all individuals legally residing in a dwelling, or who are economically dependent on the household head and/or partner – and to the prolonged co-residence of young adult children in parental home characterising the Italian context (Carrà et al., 2014).

Concerning the measurement of wealth, one major advantage of SHIW[20] is the reliability of its measures. The CAPI survey method used by the Bank of Italy limits the occurrence of variable non-response, which appears to be low (SHIW, 2022). Missing values for both wealth and income measures are imputed by using simple imputation. Since this operation is performed by the data

[20] SHIW micro-data is publicly available and can be downloaded at the following link: https://www.bancaditalia.it/statistiche/tematiche/indagini-famiglie-imprese/bilanci-famiglie/distribuzione-microdati/index.html?com.dotmarketing.htmlpage.language=1&dotcache=refresh

provider no missing values are reported on these measures in the dataset[21]. Yet, the survey design adopted by the SHIW does not include an oversampling of the wealthiest population, which is likely to lead to an underestimation of values at the top of wealth distribution. However, since our main focus does not lie on investigating educational transitions of children coming from the financial elites, but rather on the whole population, this limitation appears to be less problematic (Pfeffer, 2018).

The enrolment rate observed in our sample (57.9 %) is in line with the enrolment rate reported by the ANVUR (Agenzia Nazionale di Valutazione del Sistema Universitario), which in the period between 2006 and 2016 oscillates between 53% and 58% (Contini and Salza, 2020).

Table B1. Univariate descriptive statistics of main variables

Univariate descriptive statistics	
Enrolment rate (%)	57.9
Net wealth (median)	216,526.3
Per capita net wealth (median)	56194.86
Net wealth (min)	-100,000
Net wealth (max)	11,299,101
Net wealth Gini coefficient	0.55
Non-coresiding children (share)	2.74
Siblings in the sample (share of households)	8.5
Average number of siblings	2.1
Women (share)	0.51
Age of parents (mean)	52.72
Age (mean)	20.98
Parents' foreign citizenship (share)	0.02
Household income (median)	34489.38
Graduation mark (mean)	79.79
Social class (share)	
Service I+II	44.46
Self-Employed	10.25
Manual	20.38
Pensioner	9.98
Inactive	14.92
Parents' highest education (share)	
Tertiary degree	18.64
Upper secondary degree	48.28
Lower secondary or less	33.08
Upper secondary track (share)	
Vocational	17.14
Technical	34.21
Academic	48.65

[21] It is worth noting, though, that the Bank of Italy does not provide information on the incidence of missing values and their distribution. Therefore, it is not possible to identify possible bias due to variable non-response.

Parental marriage status (share)	
Married	87.52
Single	0.92
Divorced	7.41
Widowed	4.14

C. Estimation of the optimal value of ϑ parameter

Research on wealth relies very often on the Inverse Hyperbolic Sine (IHS) transformation to deal with the skewness to the right of the wealth distribution (Pence, 2006; Friedline et al., 2015). The IHS transformation is frequently preferred to the natural logarithm when transforming net wealth, since it mimics the natural logarithm while allowing to include zero and negative values. However, both natural log and IHS transformation make strong distributive assumptions. For instance, the natural log assumes that the distance between 0 and 500 corresponds to the distance between 500 and 250,000. In case of IHS the interval between 0 and 500 equates to the interval between 500 and 500,000. While these assumptions can be regarded as realistic when modelling income effects, in case of wealth they are quite unplausible. To relax these unrealistic distributive assumptions, the IHS can be rescaled by applying a ϑ parameter which usually assumes values between 0 and 1. Values of ϑ close to 1 approach the natural logarithmic transformation, while values tending to 0 approximate a linear scale. For instance, an IHS transformed variable with a ϑ=0.0001 assumes that the distance between 500 and 250,000 is 78 times the distance between 0 and 500. The main approaches developed in the literature suggest using models' goodness of fit as a guiding criterion to empirically find the optimal value of ϑ. However, the debate about which statistic should be used is still ongoing. For instance, Pence (2006) suggests relying on the maximum likelihood, while Aihounton and Henningsen (2021) propose using the R^2. In our analyses, we will use both the Akaike Information Criterion (AIC) and the R^2. As we will show, for models where only the independent variable is IHS transformed – as in our case – the AIC and the R^2 produce perfectly consistent results.

For each wealth component, we perform a series of multivariate regression models (Full model specification) each time specifying a different value of parameter ϑ, ranging from 10^{-8} to 10^{0}. Then we estimate the AIC and the $R^{2,}$ and we select – for each wealth component – the ϑ parameter corresponding to the model with the best goodness of fit as depicted by the AIC and the R^2. Results show that the optimal value of ϑ parameter is equal to 10^{-4} (0.0001) for net and real wealth (respectively Figures C1-C2, and C5-C6), while it is equal to 10^{-3} (0.001) for financial wealth (Figures C3-C4). The fact that the optimal value of ϑ for net and real wealth differs from the value for financial wealth is not surprising. Indeed, the distributional assumptions made by different values of the ϑ parameter are linked to the distribution of the variable: in general, the higher the variance of the

variable the lower the ◘ parameter. Since we rely on predicted values and t-tests to substantively interpret our results, the specification of different ◘ parameters for our independent variables does not undermine the comparability of results.

Figure C1. AIC values for different model specifications of multivariate regressions of net wealth. In all regression we specified three splines, and two knots (P5, P35) as highlighted by the non-parametric regression. The θ parameter varies between 10^{-8} (approximation to linear scale) and 1 (approximation to logarithmic scale)

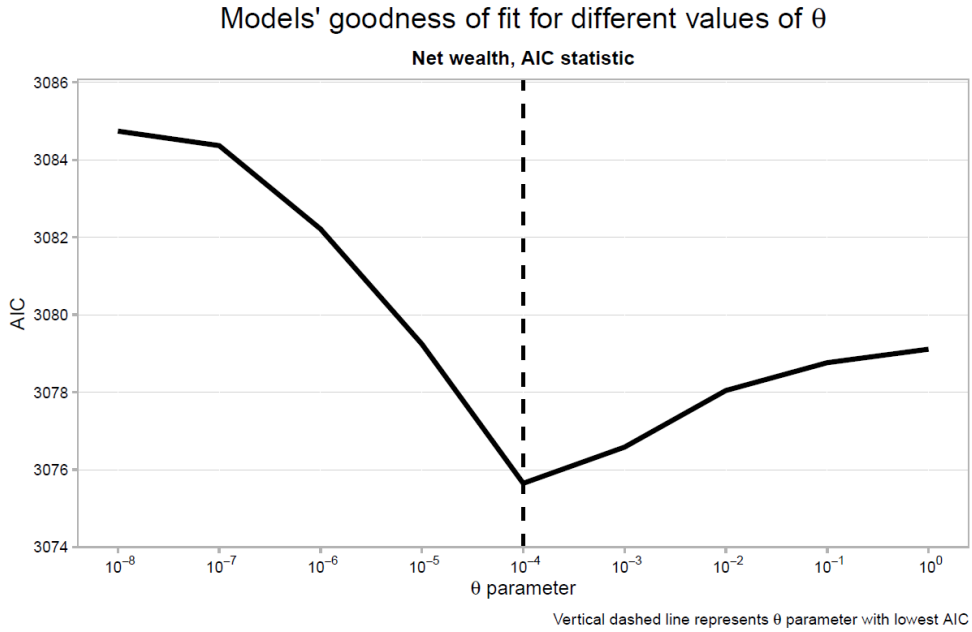


Figure C2. R^2 for different model specifications of multivariate regressions of net wealth. In all regression we specified three splines, and two knots (P5, P35) as highlighted by the non-parametric regression. The θ parameter varies between 10^{-8} (approximation to linear scale) and 1 (approximation to logarithmic scale)

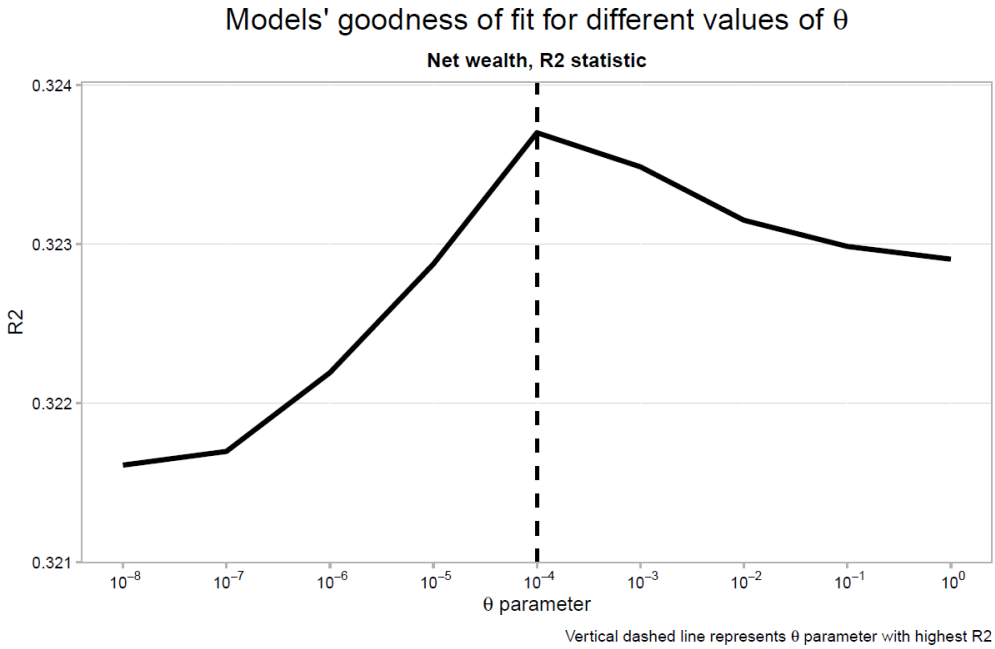


Figure C3. AIC values for different model specifications of multivariate regressions of per capita financial wealth. In all regression we specified two splines, and one knot (P50) as highlighted by the non-parametric regression. The θ parameter varies between 10^{-8} (approximation to linear scale) and 1 (approximation to logarithmic scale)

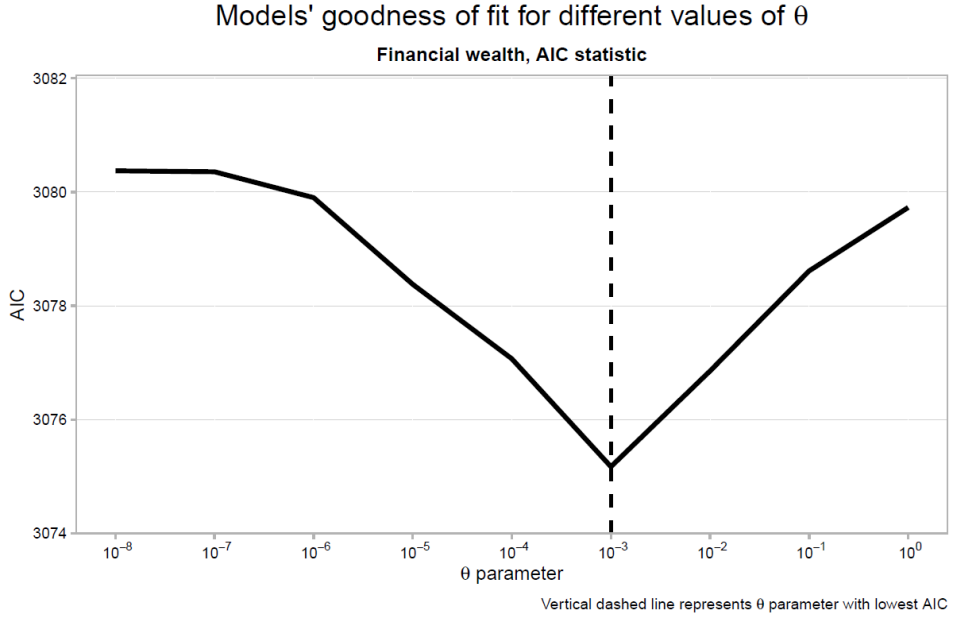


Figure C4. R^2 values for different model specifications of multivariate regressions of per capita financial wealth. In all regression we specified two splines, and one knot (P50) as highlighted by the non-parametric regression. The θ parameter varies between 10^{-8} (approximation to linear scale) and 1 (approximation to logarithmic scale)

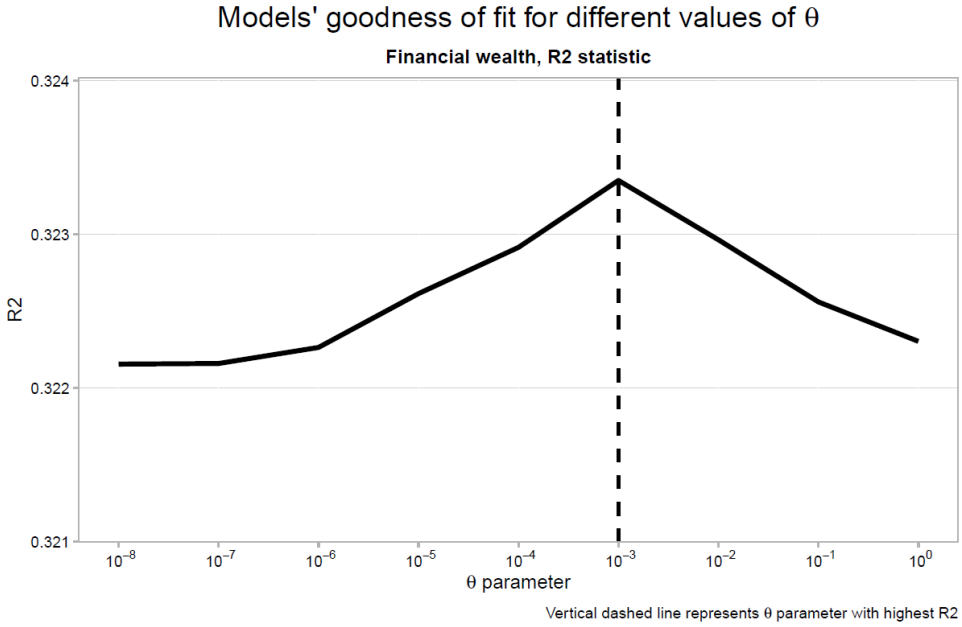


Figure C5. AIC values for different model specifications of multivariate regressions of real wealth. In all regression we specified two splines, and one knot (P30) as highlighted by the non-parametric regression. The θ parameter varies between 10^{-8} (approximation to linear scale) and 1 (approximation to logarithmic scale)

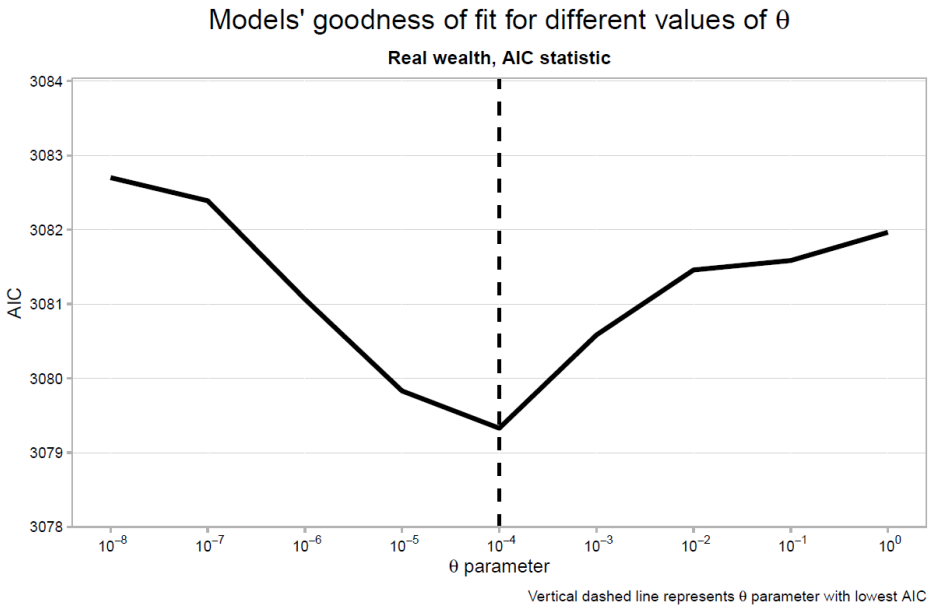
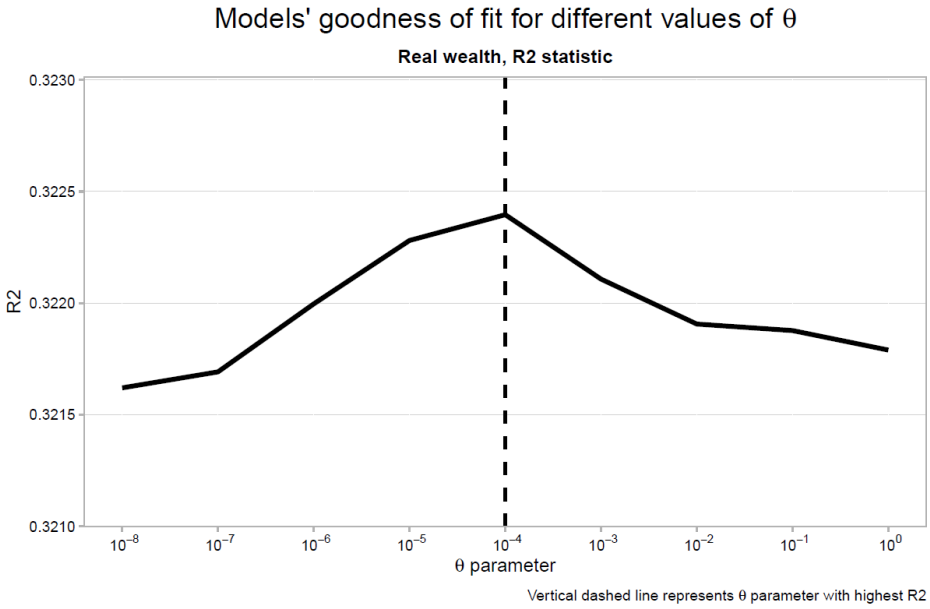


Figure C6. R^2 values for different model specifications of multivariate regressions of real wealth. In all regression we specified two splines, and one knot (P30) as highlighted by the non-parametric regression. The θ parameter varies between 10^{-8} (approximation to linear scale) and 1 (approximation to logarithmic scale)



D. Full regression coefficients

Table D1. Beta coefficients of main independent variables from LPM with net wealth splines. Weighted results

Outcome: Enrolment at University	**M1 Baseline model**	**M2 + Parental SES**	**M3 + Track and graduation mark**
IHS net wealth			
1st spline (min-P5)	$-2.09\cdot10^{-5}$***	$-1.46\cdot10^{-5}$***	$-8.95\cdot10^{-6}$**
	($5.26\cdot10^{-6}$)	($5.11\cdot10^{-6}$)	($4.36\cdot10^{-6}$)
IHS net wealth			
2nd spline (P5-P35)	$6.86\cdot10^{-6}$***	$4.11\cdot10^{-6}$***	$3.43\cdot10^{-6}$***
	($1.38\cdot10^{-6}$)	($1.38\cdot10^{-6}$)	($1.18\cdot10^{-6}$)
IHS net wealth			
3rd spline (P35-max)	$5.63\cdot10^{-6}$***	$-2.68\cdot10^{-6}$	$-3.77\cdot10^{-6}$**
	($2.06\cdot10^{-6}$	($2.08\cdot10^{-6}$)	($1.90\cdot10^{-6}$)
Parental social class ref: Service I+II			
Self-employed	---	0.0190	0.0407
		(0.0415)	(0.0384)
Manual	---	-0.106***	-0.0655*
		(0.0373)	(0.0342)
Pensioner	---	-0.0532	-0.0105
		(0.0449)	(0.0436)
Inactive	---	-0.112***	-0.0751**
		(0.0410)	(0.0378)
Parental education ref: Lower secondary or less			
Upper Secondary	---	0.179***	0.0904***
		(0.0305)	(0.0297)
Tertiary	---	0.387***	0.211***
		(0.0375)	(0.0386)

log household income	---	0.0355*	0.0206
		(0.0197)	(0.0165)
Z-Graduation mark	---	---	0.0794***
			(0.0109)
High school track ref: Vocational			
Technical	---	---	0.0426
			(0.0360)
Academic	---	---	0.445***
			(0.0364)
Constant	1.259***	0.672**	0.509*
	(0.240)	(0.311)	(0.284)
R^2	0.072	0.163	0.324
Covariates	YES	YES	YES
Observations	2,946	2,946	2,946

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table D2. Beta coefficients of main independent variables from LPM with financial wealth splines. Weighted results

Outcome: Enrolment at University	**(1) + basic covariates**	**(2) + Parental SES**	**(3) + Educational ability**	**(4) + Real assets and debt**
IHS financial wealth	$1.17 \cdot 10^{-4}$***	$6.74 \cdot 10^{-5}$***	$6.61 \cdot 10^{-5}$***	$6.37 \cdot 10^{-5}$***
(min-P50)	($2.69 \cdot 10^{-5}$	($2.66 \cdot 10^{-5}$)	($2.39 \cdot 10^{-5}$)	($2.43 \cdot 10^{-5}$)
IHS financial wealth	$3.16 \cdot 10^{-5}$**	$-8.49 \cdot 10^{-6}$	$-1.92 \cdot 10^{-5}$	$-1.44 \cdot 10^{-5}$
(P50-max)	($1.37 \cdot 10^{-5}$)	($1.35 \cdot 10^{-5}$)	($1.19 \cdot 10^{-5}$)	($1.21 \cdot 10^{-5}$)
Parental social class ref: Service I+II				
Self-employed	---	0.0151	0.0347	0.0313
		(0.0410)	(0.0378)	(0.0386)
Manual	---	-0.112***	-0.0706**	-0.0659*
		(0.0378)	(0.0345)	(0.0338)
Pensioner	---	-0.0573	-0.0139	-0.0101
		(0.0446)	(0.0434)	(0.0428)
Inactive	---	-0.107***	-0.0723*	-0.0640*
		(0.0414)	(0.0381)	(0.0376)
Parental education ref: Lower secondary or less				
Upper Secondary	---	0.181***	0.0902***	0.0851***
		(0.0302)	(0.0291)	(0.0289)
Tertiary	---	0.380***	0.203***	0.202***
		(0.0376)	(0.0383)	(0.0379)
IHS household income	---	0.0321*	0.0153	0.0144
	---	(0.0193)	(0.0162)	(0.0167)
Z-Graduation mark	---	---	0.0801***	0.0798***

			(0.0108)	(0.0108)
High school track ref: Vocational				
Technical	---	---	0.0397	0.0433
			(0.0359)	(0.0354)
Academic	---	---	0.444***	0.447***
			(0.0362)	(0.0357)
IHS real wealth (0, P30)	---	---	---	$2.16 \cdot 10^{-6}$**
				$(1.07 \cdot 10^{-6})$
IHS real wealth (P30, max)	---	---	---	$-3.32 \cdot 10^{-6}$*
				$(1.97 \cdot 10^{-6})$
IHS debt	---	---	---	$2.33 \cdot 10^{-6}$**
				$(1.05 \cdot 10^{-6})$
Constant	1.122***	0.662**	0.531*	0.464
	(0.243)	(0.306)	(0.281)	(0.282)
R^2	0.065	0.161	0.323	0.327
Covariates	YES	YES	YES	YES
Observations	2,946	2,946	2,946	2,946

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table D3. Beta coefficients of main independent variables from LPM with real wealth splines. Weighted results

Outcome: Enrolment at University	**(1) + basic covariates**	**(2) + Parental SES**	**(3) + Educational ability**	**(4) + Financial assets and debt**
IHS real wealth (min, P30)	$4.46 \cdot 10^{-6}$***	$2.78 \cdot 10^{-6}$**	$2.68 \cdot 10^{-6}$**	$2.16 \cdot 10^{-6}$**
	$(1.25 \cdot 10^{-6})$	$(1.20 \cdot 10^{-6})$	$(1.07 \cdot 10^{-6})$	$(1.07 \cdot 10^{-6})$
IHS real wealth (P30, max)	$6.66 \cdot 10^{-6}$***	$-1.77 \cdot 10^{-6}$	$-3.01 \cdot 10^{-6}$	$-3.32 \cdot 10^{-6}$*
	$(2.04 \cdot 10^{-6})$	$(2.06 \cdot 10^{-6})$	$(1.89 \cdot 10^{-6})$	$(1.97 \cdot 10^{-6})$
Parental social class ref: Service I+II				
Self-employed	---	0.0135	0.0367	0.0314
		(0.0418)	(0.0386)	(0.0385)
Manual	---	-0.110***	-0.0675*	-0.0658*
		(0.0376)	(0.0344)	(0.0338)
Pensioner	---	-0.0563	-0.0116	-0.00995
		(0.0448)	(0.0434)	(0.0428)
Inactive	---	-0.111***	-0.0747**	-0.0638*
		(0.0409)	(0.0377)	(0.0376)
Parental education ref: Lower secondary or less				
Upper Secondary	---	0.182***	0.0909***	0.0851***
		(0.0306)	(0.0297)	(0.0289)
Tertiary	---	0.385***	0.208***	0.202***
		(0.0378)	(0.0386)	(0.0379)
IHS household income	---	0.0377*	0.0214	0.0142
	---	(0.0196)	(0.0164)	(0.0167)

Z-Graduation mark	---	---	0.0795***	0.0797***
			(0.0109)	(0.0108)
High school track ref: Vocational				
Technical	---	---	0.0421	0.0432
			(0.0360)	(0.0354)
Academic	---	---	0.446***	0.447***
			(0.0362)	(0.0357)
IHS financial wealth	---	---		
(min, P50)			---	$6.37 \cdot 10^{-5}$***
				$(2.43 \cdot 10^{-5})$
IHS financial wealth	---	---		
(P50, max)			---	$-1.44 \cdot 10^{-5}$
				$(1.21 \cdot 10^{-5})$
IHS debt	---	---	---	$2.33 \cdot 10^{-6}$**
				$(1.05 \cdot 10^{-6})$
Constant	1.293***	0.664**	0.513*	0.464
	(0.240)	(0.310)	(0.283)	(0.282)
R^2	0.066	0.160	0.322	0.327
Covariates	YES	YES	YES	YES
Observations	2,946	2,946	2,946	2,946

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

E. Interaction models

Table E1. Beta coefficients and AMEs of interaction terms between net wealth and parental education

Outcome: Enrolment at University	**(1) Beta coefficients**	**(2) AME**
IHS net wealth	$3.40 \cdot 10^{-6}$***	
	$(1.17 \cdot 10^{-6})$	
IHS net wealth * Lower secondary	Ref.	$3.40 \cdot 10^{-6}$***
		(1.17e-06)
IHS net wealth * Upper secondary	$-4.77 \cdot 10^{-6}$***	$-1.36 \cdot 10^{-6}$
	$(1.45 \cdot 10^{-6})$	$(1.15 \cdot 10^{-6})$
IHS net wealth * Tertiary secondary	$-2.40 \cdot 10^{-6}$	$1.00 \cdot 10^{-6}$
	$(2.11 \cdot 10^{-6})$	$(1.90 \cdot 10^{-6})$
Constant	0.499*	
	(0.283)	
R^2	0.324	
Observations	2,946	

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Figure E2. Predicted enrolment rates of (IHS) net wealth with linear splines specification by categories of parental education (dominance criterion). Horizontal dashed lines indicate the average enrolment rate for each category of parental education: lower secondary or less (41%); upper secondary (64%), tertiary (86%). All other covariates are set at their mean

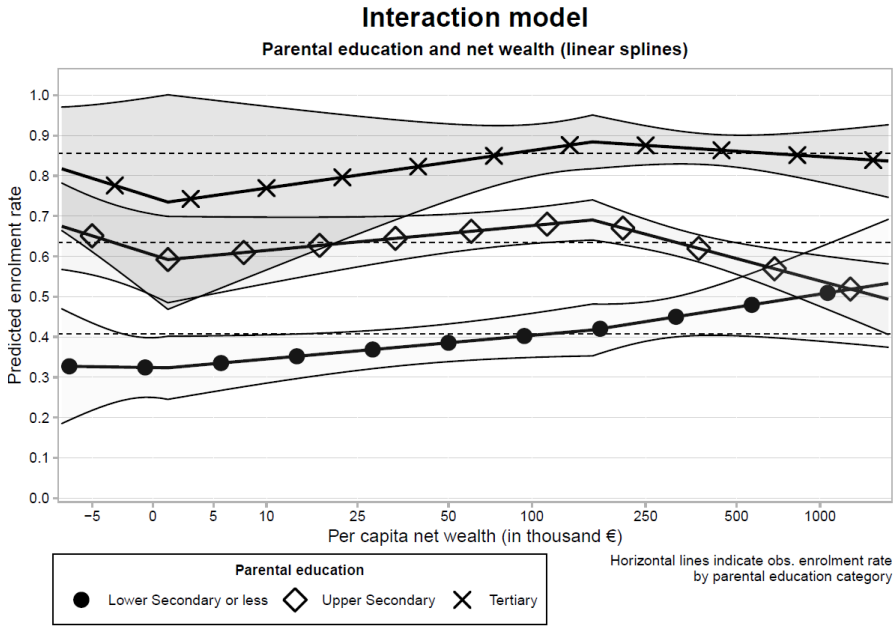


Table E3. Beta coefficients and AMEs of interaction terms between financial wealth and parental education

Outcome: Enrolment at University	**(1) Beta coefficients**	**(2) AME**
IHS net wealth	$5.54 \cdot 10^{-5}$***	
	$(1.75 \cdot 10^{-5})$	
IHS net wealth * Lower secondary	Ref.	$5.54 \cdot 10^{-5}$***
		$(1.75 \cdot 10^{-5})$
IHS net wealth * Upper secondary	$-5.74 \cdot 10^{-5}$***	$-1.91 \cdot 10^{-6}$
	$(1.91 \cdot 10^{-5})$	$(1.18 \cdot 10^{-5})$
IHS net wealth * Tertiary secondary	$-6.41 \cdot 10^{-5}$***	$-8.63 \cdot 10^{-6}$
	$(2.11 \cdot 10^{-5})$	$(1.32 \cdot 10^{-5})$
Constant	0.483*	
	(0.274)	
R^2	0.325	
Observations	2,946	

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Figure E4. Predicted enrolment rates of (IHS) per capita financial wealth by categories of parental education (dominance criterion). Horizontal dashed lines indicate the average enrolment rate for each category of parental education: lower secondary or less (41%); upper secondary (64%), tertiary (86%). All other covariates are set at their mean.

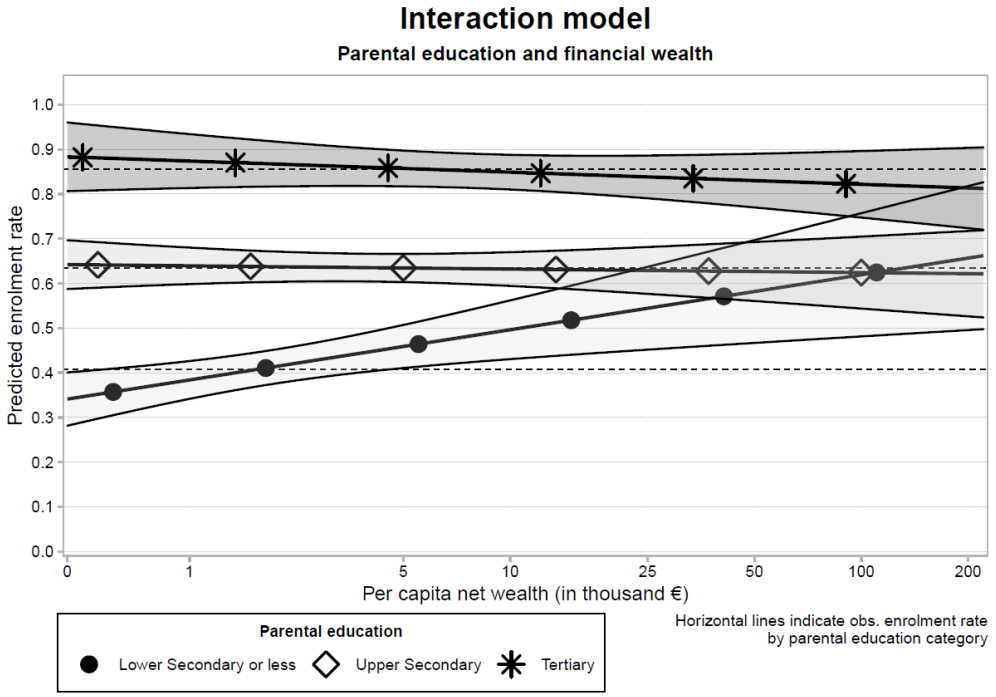
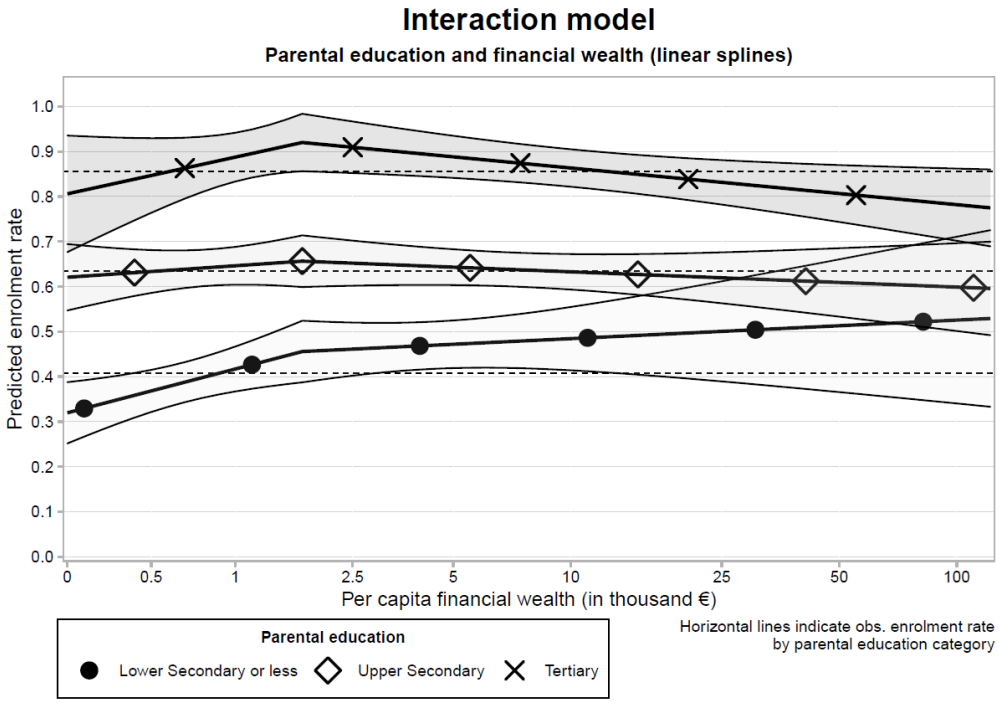


Figure E5. Predicted enrolment rates of (IHS) per capita financial wealth with linear splines specification by categories of parental education (dominance criterion). Horizontal dashed lines indicate the average enrolment rate for each category of parental education: lower secondary or less (41%); upper secondary (64%), tertiary (86%). All other covariates are set at their mean



F. Robustness checks

We perform a series of robustness checks to test the sensitivity of our results to specific methodological choices. First, we check whether different criteria employed to account for household size produce different results. Contrarily to the strategy adopted in the main analyses, we perform a set of non-parametric regression models by expressing household net and real wealth in per capita terms, and by not adjusting financial wealth by household size[22]. Since we are expressing our variables in a different scale – which implies a lower variance for the variable expressed in per capita terms and the opposite for the unadjusted ones – we further controlled whether our measures show a different optimal ◘ parameter. Results from the identification strategy (Figures F1-F3[23]) show that the optimal value is equal to 0.001 for both per capita net and real wealth, and unadjusted financial wealth. Results from this alternative specification of wealth variables largely reflect those reported in the main analyses. As expected, non-parametric regressions identify slightly different inflection points, notably at 0 (P3) and ◘45,000 (P38) for per capita net wealth, at ◘14,000 (P58) for household financial wealth, and at ◘30,000 (P27) for per capita real wealth (Figures F4-F6). Nevertheless, discrete changes in predicted enrolment rate largely reflect those reported in the main analyses: for per capita net wealth, the difference between the two inflection points (P3 vs P38) is significant at 95% level and amounts to 10 percentage points; in case household financial wealth, the difference between 0 and P59 is significant at 95% level and amounts to 10 percentage points as well; as regards per capita real wealth, discrete changes in enrolment rates are not significant. Beta coefficients from piecewise linear splines further confirm the pattern highlighted in the main analyses: the relation is found to be positive and statistically significant ($p<0.01$) at the bottom of the positive per capita net wealth distribution, and at the bottom (i.e., for values lower than P59) of the financial wealth distribution. For per capita real wealth, the relation is found to be significant only at $p<0.1$, while it is not significant at all at the top of the distribution for any wealth component (Table F7).

Second, we verify whether results for models with linear piecewise splines specification are sensitive to the choice of the model (LPM) by also performing logistic regression models. Results between LPM and logit models are largely consistent (Tables F8-F9). As expected, both the 1st and 3rd spline for net wealth show lower levels of significance in logit models compared to LPM, given the asymptotic properties of the logistic cumulative distribution function.

Third, we assess whether removing some observations of the panel components leads to a bias in our estimates. This strategy may introduce a selection bias since we include or exclude observations from the sample according to information that is not available for the non-panel component. We

[22] In this latter case we include the number of household members as control.
[23] In this case only AIC statistics is reported since it is perfectly consistent with R^2 measures.

perform Random Effects Within-Between (REWB) models with individual-specific clustered standard errors (Bell et al., 2018) where all the observations of the panel component are included. Moreover, we account for the intra-household correlation arising from siblings included in the sample (8.5%) by defining household-level clustered standard errors (Tables F10-F11). For these analyses we use piecewise linear spline regression models, since the *npregress series* command – despite its flexibility – does not allow to perform hybrid models or to specify clustered standard errors. Results for splines located at the bottom of the positive distribution for both net wealth (2nd spline), and financial wealth (1st spline) are largely consistent. Conversely, for the 1st and 3rd spline of net wealth and for real wealth some slight variation in the significance levels is found depending on the model specification.

Fourth, we check whether wealth measures pose concerns of multicollinearity by computing the Variance Inflation Factor (VIF) (Pregibon, 1981; Rossi, 2006). The VIF is computed for net, financial, and real wealth splines with the full specification of covariates (i.e., Full model, respectively M3, MF3, MR3). VIF scores are lower than 2 for each wealth measure considered, thus suggesting that multicollinearity concerns may be rejected (Table F12). In literature, values higher than 10 (Hair et al., 1995; O'Brien, 2007) are usually identified as rule of thumb for posing collinearity concerns.

Finally, we perform a sensitivity analysis to check whether the selection of the referent parent through the dominance criterion (Erikson, 1984) may entail sizable differences compared to other criteria. Thus, the analyses reported below have been done adopting a different definition of reference parent: i.e., the one with the highest income in the year of the survey. The results remain the same (Tables F13-F14, Appendix).

In general, the robustness checks corroborate the main results: independently of the model specification, parental wealth is found to be significatively associated with a higher enrolment rate at the bottom of the positive net wealth distribution, and up to the median for the financial component. For the negative and the top part of net wealth distribution and for real assets, conversely, results are less consistent. Consequently, inferences about these latter results should be taken cautiously.

Figure F1. AIC values for different model specifications of multivariate regressions of net wealth. In all regression we specified three splines, and two knots (P3, P38) as highlighted by the non-parametric regression

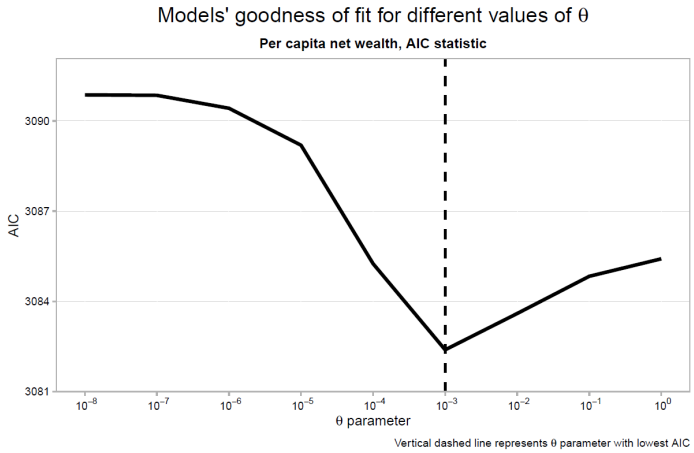


Figure F2. AIC values for different model specifications of multivariate regressions of net wealth. In all regression we specified two splines, and one knot (P59) as highlighted by the non-parametric regression

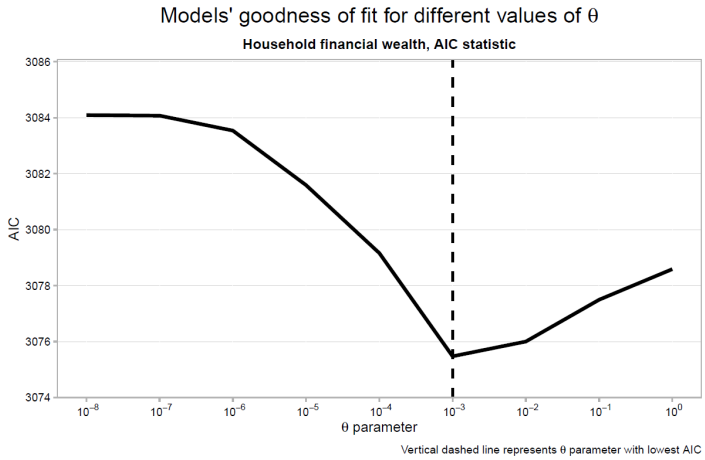


Figure F3. AIC values for different model specifications of multivariate regressions of net wealth. In all regression we specified two splines, and one knot (P27) as highlighted by the non-parametric regression

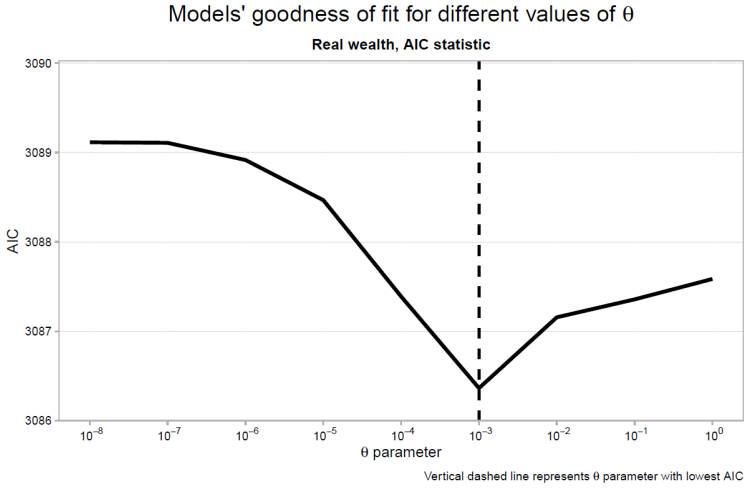


Figure F4. Predicted enrolment rate for different values of per capita net wealth. A non-parametric regression model with natural splines (third-order polynomials) is specified

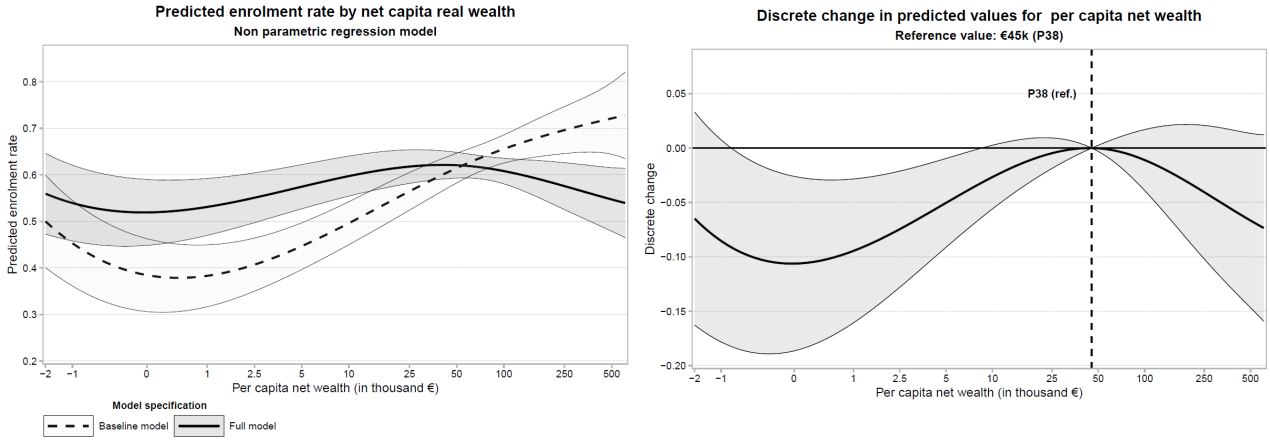


Figure F5. Predicted enrolment rate for different values of household financial wealth. A non-parametric regression model with natural splines (third-order polynomials) is specified

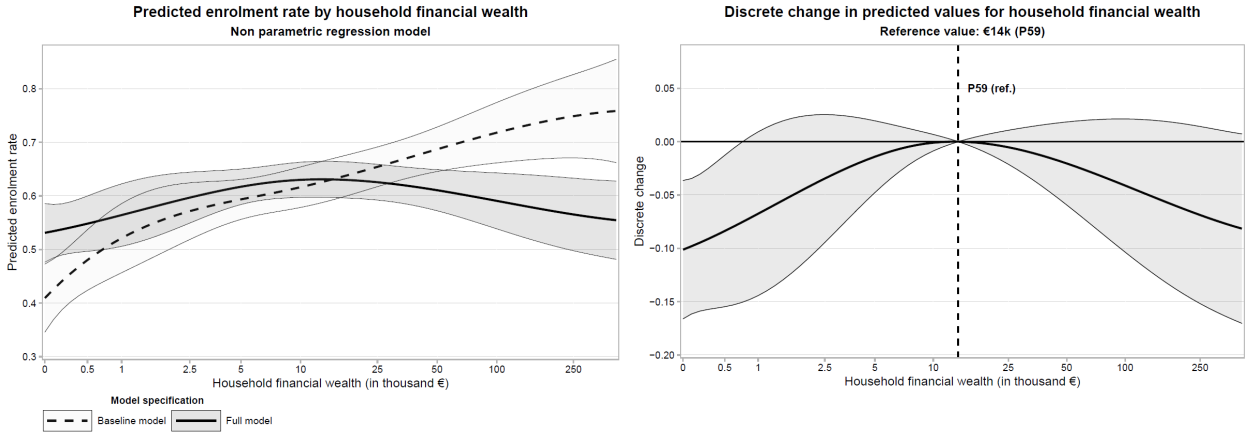


Figure F6. Predicted enrolment rate for different values of per capita real wealth. A non-parametric regression model with natural splines (third-order polynomials) is specified

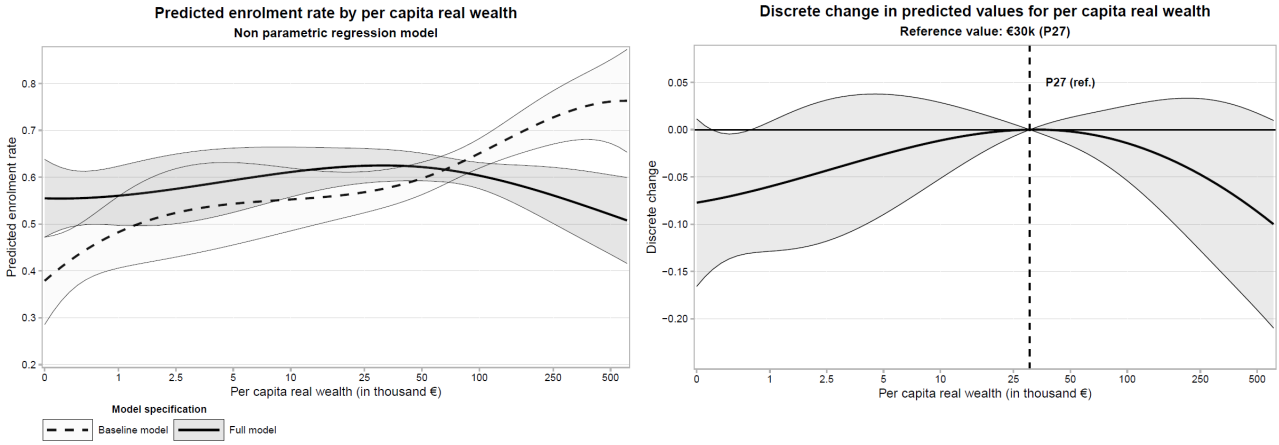


Table F7. Comparison of linear splines beta coefficients between models adopted in main analyses (net and real wealth in absolute terms and financial wealth in per capita terms) and alternative models (with net and real wealth expressed in per capita terms and financial wealth in absolute terms).

Outcome: Enrolment at University	**Household (main analyses)**	**Per capita**
IHS net wealth 1st spline	$-8.95\cdot10^{-6}$**	$-6.95\cdot10^{-5}$**
	$(4.36\cdot10^{-6})$	$(3.08\cdot10^{-5})$
IHS net wealth 2nd spline	$3.43\cdot10^{-6}$***	$2.92\cdot10^{-5}$***
	$(1.18\cdot10^{-6})$	$(9.80\cdot10^{-6})$
IHS net wealth 3rd spline	$-3.77\cdot10^{-6}$**	$-2.82\cdot10^{-5}$
	$(1.90\cdot10^{-6})$	$(1.92\cdot10^{-5})$
Covariates	YES	YES
Observations	2,946	2,946

Robust standard errors
in parentheses *** p<0.01, ** p<0.05, * p<0.1

Outcome: Enrolment at University	**Per capita (main analyses)**	**Household**
IHS financial wealth 1st spline	$6.37\cdot10^{-5}$***	$3.35\cdot10^{-5}$***
	$(2.43\cdot10^{-5})$	$(1.13\cdot10^{-5})$
IHS financial wealth 2nd spline	$-1.44\cdot10^{-5}$	$-2.05\cdot10^{-5}$
	$(1.21\cdot10^{-5})$	$(1.36\cdot10^{-5})$
Covariates	YES	YES
Observations	2,946	2,946

Robust standard errors
in parentheses *** p<0.01, ** p<0.05, * p<0.1

Outcome: Enrolment at University	**Household (main analyses)**	**Per capita**
IHS real wealth 1st spline	$2.16\cdot10^{-6}$**	$1.85\cdot10^{-5}$*
	$(1.07\cdot10^{-6})$	(9.51e-06)
IHS real wealth 2nd spline	$-3.31\cdot10^{-6}$*	$-2.08\cdot10^{-5}$
	$(1.18\cdot10^{-6})$	$(1.87\cdot10^{-5})$
Covariates	YES	YES
Observations	2,946	2,946

Robust standard errors
in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table F8. Comparison of net wealth splines beta coefficients between different model specifications: (1) LPM; (2) Logit. Both models include full specification of covariates

Outcome: Enrolment at University	**(1) LPM**	**(2) Logit**
IHS net wealth		
1st spline (min-P5)	$-8.95\cdot10^{-6}$**	$-6.49\cdot10^{-5}$*
	$(4.36\cdot10^{-6})$	$(3.81\cdot10^{-5})$
IHS net wealth		
2nd spline (P5-P35)	$3.43\cdot10^{-6}$***	$2.11\cdot10^{-5}$***
	$(1.18\cdot10^{-6})$	$(6.95\cdot10^{-6})$
IHS net wealth		
3rd spline (P35-max)	$-3.77\cdot10^{-6}$**	$-2.34\cdot10^{-5}$*
	$(1.90\cdot10^{-6})$	$(1.27\cdot10^{-5})$
Covariates	YES	YES
Observations	2,946	2,946

Robust standard errors
in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table F9. Comparison of financial and real wealth splines beta coefficients between different model specifications: (1) LPM; (2) Logit. Both models include full specification of covariates

Outcome: Enrolment at University	**(1) LPM**	**(2) Logit**
IHS financial wealth		
1st spline (0-P50)	$6.69\cdot10^{-5}$***	$4.05\cdot10^{-4}$***
	(2.52e-05)	$(1.49\cdot10^{-4})$
IHS financial wealth		
2nd spline (P50-max)	$-1.41\cdot10^{-5}$	$-8.35\cdot10^{-5}$
	$(1.20\cdot10^{-5})$	$(8.08\cdot10^{-5})$
IHS real wealth		
3rd spline (0-P30)	$2.16\cdot10^{-6}$**	$1.27\cdot10^{-5}$**
	$(1.07\cdot10^{-6})$	$(6.44\cdot10^{-6})$
IHS real wealth		
3rd spline (P30-max)	$-3.31\cdot10^{-6}$*	$-2.01\cdot10^{-5}$
	$(1.97\cdot10^{-6})$	$(1.28\cdot10^{-5})$
Covariates	YES	YES
Observations	2,946	2,946

Robust standard errors
in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table F10. Comparison of net wealth splines beta coefficients between different model specifications: (1) LPM (with panel removal); (2) REWB (without panel removal); (3) household-level clustered standard error (with panel removal). All models include full specification of covariates

Outcome: Enrolment at University	**(1) LPM**	**(2) REWB**	**(3) Household CL-SE**
IHS net wealth			
1st spline (min-P5)	$-8.95\cdot10^{-6}$**	$-1.35\cdot10^{-5}$***	$-8.95\cdot10^{-6}$**
	$(4.36\cdot10^{-6})$	$(4.44\cdot10^{-6})$	$(4.47\cdot10^{-6})$
IHS net wealth			
2nd spline (P5-P35)	$3.43\cdot10^{-6}$***	$4.16\cdot10^{-6}$***	$3.43\cdot10^{-6}$***
	$(1.18\cdot10^{-6})$	$(1.29\cdot10^{-6})$	$(1.25\cdot10^{-6})$
IHS net wealth			
3rd spline (P35-max)	$-3.77\cdot10^{-6}$**	$-2.36\cdot10^{-6}$	$-3.77\cdot10^{-6}$*
	$(1.90\cdot10^{-6})$	$(1.83\cdot10^{-6})$	$(1.96\cdot10^{-6})$
Covariates	YES	YES	YES
Observations	2,946	4,000	2,946

Robust (LPM) and clustered (REWB, CL-SE) standard errors
in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table F11. Comparison of financial and real wealth splines beta coefficients between different model specifications: (1) LPM (with panel removal); (2) REWB (without panel removal); (3) household-level clustered standard error (with panel removal). All models include full specification of covariates

Outcome: Enrolment at University	**(1) LPM**	**(2) REWB**	**(3) Household CL-SE**
IHS financial wealth			
1st spline (0-P50)	$6.37\cdot10^{-5}$***	$6.10\cdot10^{-5}$***	$6.37\cdot10^{-5}$***
	$(2.43\cdot10^{-5})$	$(2.42\cdot10^{-5})$	$(2.41\cdot10^{-5})$
IHS financial wealth			
2nd spline (P50-max)	$-1.44\cdot10^{-5}$	$-1.42\cdot10^{-5}$	$-1.44\cdot10^{-5}$
	$(1.21\cdot10^{-5})$	$(1.25\cdot10^{-5})$	$(1.26\cdot10^{-5})$
IHS real wealth			
3rd spline (0-P30)	$2.16\cdot10^{-6}$**	$2.98\cdot10^{-6}$***	$2.16\cdot10^{-6}$*
	(1.07e-06)	$(1.13\cdot10^{-6})$	$(1.14\cdot10^{-6})$
IHS real wealth			
3rd spline (P30-max)	$-3.32\cdot10^{-6}$*	$-2.38\cdot10^{-6}$	$-3.32\cdot10^{-6}$
	$(1.97\cdot10^{-6})$	$(1.92\cdot10^{-6})$	$(2.06\cdot10^{-6})$
Covariates	YES	YES	YES
Observations	2,946	4,000	2,946

Robust (LPM) and clustered (REWB, CL-SE) standard errors
in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table F12. Variance Inflation Factor (VIF) for net, financial, and real wealth splines. All models include full specification of covariates (Full model)

	VIF
IHS net wealth 1st spline (min-P5)	1.22
IHS net wealth 2nd spline (P5-P35)	1.63
IHS net wealth 3rd spline (P35-max)	1.69
IHS financial wealth 1st spline (0-P50)	1.71
IHS financial wealth 2nd spline (P50-max)	1.74
IHS real wealth 3rd spline (0-P30)	1.41
IHS real wealth 3rd spline (P30-max)	1.86

Table F13. Comparison of net wealth beta coefficients between models with a different specification of the referent parent: (1) parent with the highest educational level; (2) main income earner.

Outcome: Enrolment at University	**(1) Dominance**	**(2) Main Income Earner**
IHS net wealth 1st spline (min-P5)	$-8.95\cdot10^{-6}$**	$-8.05\cdot10^{-6}$*
	$(4.36\cdot10^{-6}$	$(4.44\cdot10^{-6})$
IHS net wealth 2nd spline (P5-P45)	$3.43\cdot10^{-6}$***	$3.68\cdot10^{-6}$***
	$(1.18\cdot10^{-6})$	$(1.18\cdot10^{-6})$
IHS net wealth 3rd spline (P45-max)	$-3.77\cdot10^{-6}$**	$-4.18\cdot10^{-6}$**
	$(1.90\cdot10^{-6})$	$(1.93\cdot10^{-6})$
Covariates	YES	YES
Observations	2,946	2.946

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table F14. Comparison of financial and real wealth beta coefficients between models with a different specification of the referent parent: (1) parent with the highest educational level; (2) main income earner

Outcome: Enrolment at University	**(1) Dominance**	**(2) Main Income Earner**
IHS financial wealth 1st spline (min-P50)	$6.37 \cdot 10^{-5}$*** ($2.43 \cdot 10^{-5}$)	$4.31 \cdot 10^{-4}$*** ($1.50 \cdot 10^{-4}$)
IHS financial wealth 2nd spline (P50-max)	$-1.44 \cdot 10^{-5}$ ($1.21 \cdot 10^{-5}$)	$-9.40 \cdot 10^{-5}$ ($8.26 \cdot 10^{-5}$)
IHS real wealth 1st spline (min-P30)	$2.16 \cdot 10^{-6}$** ($1.07 \cdot 10^{-6}$)	$1.39 \cdot 10^{-5}$** ($6.62 \cdot 10^{-6}$)
IHS real wealth 2nd spline (P30-max)	$-3.32 \cdot 10^{-6}$* ($1.97 \cdot 10^{-6}$)	$-2.19 \cdot 10^{-5}$* ($1.30 \cdot 10^{-5}$)
Covariates	YES	YES
Observations	2,946	2,946

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

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