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We investigate whether classical studies in high school – that emphasize in Italy the study of ancient languages such as Greek and Latin – affect personality traits. Using Italian survey data, we compare individuals who did classical studies in high school with similar individuals who completed a more scientific academic curriculum. We find that classical studies increase agreeableness and extraversion but not openness and conscientiousness.
Keywords: school choice, education, classical studies, Big Five, non-cognitive skills, personality traits
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Discussion Paper Series

Do Classical Studies Open your Mind?

Discussion paper n. 17/2025

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We thank Michele Boldrin, Giulio Zanella and participants at the GLO Global Conference 1-3 December 2022 for comments. We also thank Dario Delle Donne for research assistance. Corresponding author: Giorgio Brunello, Department of Economics and Management, University of Padua, via del Santo 33, 35123 Padova, Italy, E-mail: giorgio.brunello@unipd.it. This study was funded by the European Union - NextGenerationEU, in the framework of the GRINS - Growing Resilient, INclusive and Sustainable project (GRINS PE00000018 –CUP C93C22005270001). The views and opinions expressed are solely those of the authors and do not necessarily reflect those of the European Union, nor can the European Union be held responsible for them. The views and opinions expressed in this article are those of the authors and do not necessarily reflect those of the institutions of affiliation.

Do Classical Studies Open your Mind? *

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Abstract

We investigate whether classical studies in high school – that emphasize in Italy the study of ancient languages such as Greek and Latin – affect personality traits. Using Italian survey data, we compare individuals who did classical studies in high school with similar individuals who completed a more scientific academic curriculum. We find that classical studies increase agreeableness and extraversion but not openness and conscientiousness.

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Highlights

- Classical studies in high school increase agreeableness and extraversion.
- Classical studies have no effect on conscientiousness, neuroticism and openness.

1. Introduction

There is an ongoing debate in Italy on the usefulness of classical studies in high school. Why should students spend time trying to master ancient Latin and Greek at the expense of mathematics and science? A popular argument is that the experience develops self-discipline and the ability to work hard. A well-known journalist writing for the *Corriere della Sera,* a leading newspaper, writes that "…classical studies are like a bicycle: while you are on it, you struggle, and it seems that you are going nowhere. After you finish your ride, however, you discover that now you have the muscles to go anywhere."[1] Supporters of classical studies also argue that by struggling over ancient Latin and Greek young Italians learn to understand others and open their mind to different cultures (Cardinale and Sinigaglia, 2016).

Hard work and self-discipline and openness to others' ideas are defining characteristics of conscientiousness and openness, two of the Big Five personality traits, together with agreeableness, extraversion and neuroticism. In this paper we ask whether the popular arguments in favor of classical studies are supported by empirical evidence, using data drawn from the National Institute for Public Policy Analysis' (INAPP) Participation, Labor and Unemployment Survey (PLUS) for the year 2018. PLUS contains information on several personal and labor characteristics of individuals as well as on traits that can be matched to the Big Five classification using the Ten Item Personality Inventory (TIPI; see Costa and McCrae 1992; McCrae and Costa 2008).

[1] See https://www.corriere.it/caffe-gramellini/23_febbraio_01/vero-classico-83582dba-a1ab-11ed-8104-5554690e695f.shtml.

We show that classical studies in high school do not produce higher conscientiousness and openness when compared to academic school curricula that place less emphasis on ancient languages and give more space to mathematics and science. Rather, classical studies are associated with higher agreeableness and extraversion.

We also find that extraversion is positively associated with the probability of employment but unrelated to log earnings, and that agreeableness is unrelated to both, suggesting that a higher endowment of both traits – produced by classical studies - is unlikely to be associated with poorer labour market prospects.

Our results cast doubts on the view that classical studies are obsolete. There is broad consensus that the skills of the future include communication skills, teamwork and customer service orientation. More extroverted and agreeable individuals are more likely to acquire these skills, to work with others and engage in social interactions. By fostering agreeableness and extraversion, classical lycei may still have an important role to play in the future of work.

Our paper is closely related to the literature that looks at the effects of school curricula on individual outcomes. This literature has considered mainly outcomes such as the likelihood of completing college, the choice of college major and labor market outcomes (see for instance Cole et al, 2016; Cortes et al. 2015; Goodman 2019; Agarwal et al, 2021). We focus instead on personality traits.

Our work is also related to the literature—mainly European—that explores the economic consequences of secondary school tracks (see, e.g., Brunello and Rocco 2017; Hanushek et al. 2017, Ollikainen at al, 2022). While the focus of this literature is on the pluses and minuses of academic versus vocational education, we present empirical evidence on differences *within* academic education.

This paper also contributes to the recent literature examining the link between personality traits and labor market outcomes (see for instance Koch, Nafzigera, and Skyt Nielsen 2015, Heckman, Stixrud, and Urzua 2006; Heckman and Kautz

2012; Caliendo, Cobb-Clark, Uhlendorff 2015, Esposito and Scicchitano, 2023). A key finding of this literature is that personality traits are strong predictors of socioeconomic success (Almlund et al. 2011; Palczyńska 2021). Heckman, Stixrud, and Urzua (2006), among others, show that non-cognitive skills are at least as important as cognitive skills in affecting a range of adult outcomes. Our focus is instead on the relationship between high school curricula and the Big Five personality traits, which to our knowledge has never been studied before.

The remainder of the paper is organized as follows. In Section II, we describe the structure of secondary high schools in Italy. In Section III, we present the data and provide descriptive evidence. Section IV describes the econometric strategy and the Ordinary Least Squares estimates. Section V presents the results of the Instrumental Variables estimates. A discussion follows in Section VI. Section VII provides summary conclusions and policy implications.

2. Secondary high schools in Italy

High schools in Italy are organized into an academic and a vocational track. Compared to the vocational track, the academic track attracts students with higher cognitive ability and with a better parental background (see Agarwal et al. 2021). The academic track comprises the classical lyceum, with its strong emphasis on ancient Latin and Greek, the scientific lyceum, with some Latin and an emphasis on mathematics and sciences, and other more specialized programs, which focus mainly on languages, the arts and teaching.

During every school week, and depending on the grade, a student in the classical lyceum spends from 7 to 9 hours (close to 30% percent of total school time) studying Latin and Greek, and 6 to 7 hours (close to 22% of total time) studying Math and Sciences. On the other hand, a student in the scientific lyceum spends from 0 to 3 hours studying Latin (at most 10% of total time) and from 9 to 14 hours (close to 40% of total time) studying Math and Sciences.[2]

[2] The scientific lyceum can be "traditional" (with Latin) or "applied sciences" (without Latin).

Within the academic track, the share of female students enrolled in the classical lyceum has declined from close to 60 percent for the cohorts born in the 1950s to close to 40 percent for the cohorts born at the turn of the millennium (see Figure 1).[3] A similar decline affected the share of male students, which declined from close to 40% in the late 1960s to just above 20 percent in the 2010s.

3. Data

In this paper we use data drawn from the 2018 wave of the PLUS survey, produced by INAPP, an Italian national research institute. The main objective of this survey is to provide reliable statistical estimates of phenomena that are not covered by other Italian labor market surveys, included the quarterly labor force survey (LFS). For instance, while the LFS collects information on the highest attained degree, PLUS also inquires about educational pathways, which include the completed high school degree.

The PLUS survey also contains information on a wide range of standard individual characteristics, as well as on numerous characteristics related to professions and firms, for approximately 45,000 individuals in each wave. A dynamic computer-assisted telephone interview (CATI) approach was used to distribute the questionnaire to a sample of residents aged between 18 and 74 according to a stratified random sampling over the Italian population.[4] One of the key elements of this dataset is the absence of proxy interviews: in the survey, only survey respondents are reported, to reduce measurement errors and partial non-responses. PLUS provides individual weights to account for nonresponse and attrition issues which usually affect sample surveys. The 2018 wave of PLUS has a module on non-cognitive skills, which uses the Ten Item Personality

[3] Source: Italian Ministry of Education.

[4] Following the LFS, the stratification of the PLUS survey sample is based on population strata by NUTS-2 region of residence, urbanization degree (i.e. metropolitan or non-metropolitan area), age group, sex, and employment status (i.e. employed, unemployed, student, retired, or other inactive status).

Inventory (TIPI) to construct the Big Five personality traits (see Costa and McCrae, 1992).

These traits are agreeableness, conscientiousness, openness, extraversion and neuroticism. The TIPI assesses the positive and negative facets of each Big Five trait with two questions for trait. On a scale of 1 to 7, individuals are asked to rate their perceived level. By inverting the negative component (1=7; 2=6; ...; 7=1) and adding it to the positive component, we aggregate the two measures into a single trait. Each trait ranges from a minimum of 2 to a maximum of 14. Table 1 presents the list of all traits and facets.

Our sample includes individuals aged 19 to 64 who have completed at least high school. Table 2 shows the summary statistics by type of high school, both for the Big Five and for several individual characteristics, including gender, age, parental background, a standardized measure of performance at the end of junior high school and attitudes toward math, music and the arts at age 13. All summary statistics are weighted using the weights provided by PLUS to retrieve population means.

Compared to those who graduated from a scientific lyceum, individuals who have completed a classical lyceum have on average higher or at least as high values of the Big Five personality traits. They are more likely to be female, older, have better parental background, a higher test score at exit from junior high school and a higher preference for music and the arts. Since these differences could be driven by the type of school and by the fact that individuals selecting into classical and scientific lycei are inherently different, separating the causal effect of the type of school from selection into school type is the clear empirical challenge that this paper must address.

4. Econometric strategy and ordinary least squares (OLS) estimates

To understand whether classical studies do open one's mind, we would need to compare the non-cognitive skills of individuals who attended a classical lyceum with those of the same individuals had they attended another school (counter-

factual). Since the counterfactual is not observable, we need to select a control sample from the pool of actual high school graduates. Table 2 compares parental background indicators and a measure of school performance at the end of junior high school across different programs. It is clear that graduates of the scientific lyceum come closest to those who completed a classical lyceum in terms both of school performance and of parental background. Based on this, we choose individuals who graduated from a classical lyceum as the treatment group and individuals who completed a scientific lyceum as the control group, excluding all other students from the sample.

We estimate the effect of attending a classic lyceum by relying on the following model defined over students who completed a lyceum, either classical of scientific:

$$TT_{iiiiii}^{kk} = \beta\beta_0 + \beta\beta_1 CC_{iiiiii} + XX_{iiiiii}\beta\beta_2 + \theta\theta_{iiii} + \varepsilon\varepsilon_{iiiiii} \quad (1)$$

where TT_{iiiiii} is the level of the k-th personality trait for individual i, belonging to cohort c and grown up in region r, CC_{iiiiii} is a dummy equal to 1 for individuals who attended the classical lyceum and to 0 from those who attended a scientific lyceum, XX_{iiiiii} are individual controls, $\theta\theta_{iiii}$ are region-by-cohort effects and $\varepsilon\varepsilon_{iiiiii}$ is the error term.

Table 3 shows the ordinary least squares estimates of the association between having done a classical lyceum and the Big Five personality traits. These estimates are conditional on gender, age, parental background, performance at the end of junior high school, attitudes for math, music and the arts at age 13 and height. We control for region-by-cohort effects by interacting five macro-regions with nine cohort groups.[5] We employ the weights provided by PLUS and cluster the standard errors by region, cohort and gender.

[5] We group the 20 regions of Italy in 5 macro-regions (Northwest, Northeast, Center, South and Islands). Age cohort comprise the age intervals 19-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59 and 60-64. Results are qualitatively similar when cohorts span over 1 year of age rather than 5 years. We also include the following interactions: age, parental education and occupation with the standardized score, gender and region; parental education and occupation with age; age with

We find no evidence of statistically significant associations between a classical curriculum and the Big Five personality traits at the conventional level of statistical significance (5 percent), although the relationship with both conscientiousness and neuroticisms is significant at 10% level. In addition, all point estimates are very small.

5. Instrumental variables (IV)

The comparison of non-cognitive skills between graduates of classical and scientific lycei can be given a causal interpretation only if the assignment of individuals to each group is as good as random. Since this is hardly the case, even after conditioning on the controls included in Equation (1), the identification of causal effects requires a source of exogenous variation (an instrument) which affects selection into school type without directly impacting on personality traits.

In this paper, we consider the population enrolled in classical and scientific lycei and select as instrument the gender-specific share SH of students enrolled in classical lycei when the individual was 14, the age of choice, in the region where he/she grew up until age 18. This share proxies the relative supply of slots in classical and scientific lycei at the time when the choice of the type of school is made and captures the relative popularity of classical lyceum as well among boys and girls at the time of choice. Given the limited inter-regional mobility of high school students, we expect that both a higher relative supply and the mechanism of imitation increases enrolment.

We compute the instrument using data on enrolment by region where the individual grew up, gender and age of birth. These data are available either online or on paper from the Italian Statistical Institute. Enrolment for males and females is available from 1970 to 2013 with a few missing years (1968, 1969, 1974, 1979, 1988 and 2008). Enrolment for females is available for a smaller number of

whether liked math or music and the arts at age 13; age with the standardized score; height with gender and region; gender with region, the standardized score and whether liked math or music and the arts at age 13. By region we mean the region where the individual grew up.

years. We replace missing values by interpolating between available years. Figure 1 shows the estimated shares of students enrolled in classical studies by gender and year of birth.

We investigate whether the instrument is weak by regressing the binary variable indicating whether the individual has completed a classical lyceum on the set of controls used in equation (1) and the instrument SH. As shown in Table 4, the instrument has a positive and statistically significant effect on the probability of completing classical studies. The associated F-test is above 10, the rule of thumb threshold required to exclude instrument weakness.

Two other conditions need to be satisfied for an instrument to be valid: exogeneity and excludability. Both are non testable. However, Oster, 2019, provides a method to assess, under some hypotheses, the extent to which reduced form and first stage estimates are sensible to (un-observable) confounders, and thus whether the assumption of exogeneity is credible. We find that the first stage estimate remains positive and gets smaller (Oster bound=0.240) when un-observables are accounted for (Table 4). The influence of un-observables on reduced form estimates is instead mixed, but when these estimates are positive and significantly different from zero, as in the case of agreeableness and extraversion, accounting for un-observables only reinforces this result. For conscientiousness, openness and neuroticism, reduced form estimates are imprecise, and the Oster test confirms that there is no clear relationship between them and the instrument (Table 5 – upper panel).

Turning to excludability, we notice that the instrument varies by region, cohort and gender. By conditioning both on macro region by cohort group dummies and on gender, as well as on the interactions of gender with age and region, we exclude that either systematic gender differences or local factors varying by macro region and cohort group, such as the local economic cycle or the cultural and social context, explain the effect of the instrument on personality traits. Conditional on these covariates, we find it plausible to assume that the

instrument affects personality traits only by influencing the choice between classical and scientific lycei.

We report in the lower panel of Table 5 the IV estimates, showing that students who attended a classical lyceum are both more agreeable and more extrovert than those who attended a scientific lyceum. Contrary to popular views, we find no evidence that the type of high school has a statistically significant effect on openness and conscientiousness. There is also no effect on neuroticism.

These results suggest that students who pursue their education at a classical lyceum, where the curriculum is intensive in the study of ancient and modern languages and literature, not only deepen their understanding of the authors' emotions and sentiments but also develop greater empathy and sympathy towards others, and ultimately enhance their social skills.

The causal effects that we estimate are sizeable. With respect to the sample mean of either outcome, we find that classical lycei increase agreeableness by 29.8 percent and extraversion by 56.3 percent. These effects are much larger than those estimated by OLS. Candidate reasons for this gap include the importance of selection effects, which influence OLS but not IV estimates, and group heterogeneity. In particular, IV estimates are local average treatment effects, which apply to the sub-population of compliers, who have been induced by exogenous increases (decreases) in the relative supply of school slots in the region to take up classical (scientific) studies. For the reasons discussed above, it is unlikely that these large effects are driven by a violation of the exclusion restriction.

6. Discussion

Agreeableness and extraversion are two personality traits which are strongly connected to individual sociability and the ability to establish social relations and participate to social networks (Tov et al., 2016). More specifically, the agreeable aim to maintain and nurture their social relationships and avoid conflict, are warm, kind and sympathetic, while the extraverts are motivated in establishing

social relationships, outgoing, enthusiastic, and inclined to trust others. Rollings et al., 2022, among others, provide evidence that agreeableness and extraversion are associated with larger social networks among the British seniors.

Agreeableness is also defined as a "tendency to act in a cooperative and unselfish manner" (John and Srivastava, 1999). Being more cooperative and likeable could benefit individuals with these characteristics in teamwork settings. However, the negative side of being agreeable is that "extremely agreeable individuals may sacrifice their success in pleasing others" (Judge et al., 1999, p. 625). Conversely, extraversion positively predict self-reported competitiveness (Fong et al, 2021).

According to Barrick and Mount, 1991, extraversion is a valid predictor for two occupations in particular, managers and sales, as interaction with others is significant in improving performance in these jobs. Those who are extraverted are likely to benefit more from training programs as they are highly interactive and more willing to engage in learning experiences.

Do these traits pay off in the labour market? Many empirical studies have found no significant correlation between agreeableness and labor market outcomes, and even when the correlation is significant, the effect is likely to be negative (Heineck and Anger, 2010; Mueller and Plug, 2006; Nyhus and Pons, 2005). The association between agreeableness and wages is ambiguous. Lee and Ohtake, 2018, find that agreeableness contributes to higher annual income for male workers in Japan, but acts as a penalty for male workers in the U.S. Bonacini et al., 2021, find that in Italy openness and conscientiousness improve educational and occupational skills, whereas agreeableness acts in the opposite way. There is also evidence that extraversion is positively associated with labor market participation and wages (Fletcher, 2013; Alderotti et al, 2023).

Using our data, we regress the probability of employment and log earnings on the five personality traits, after standardizing them so that they have zero mean and standard deviation equal to 1. As reported in Table 6, we find that extraversion (agreeableness) is positively (negatively) associated with

employment, albeit the effect is imprecisely estimated for agreeableness. In particular, we estimate that a one standard deviation increase in extraversion is associated to a 1.7 percent increase in the probability of employment. Conversely, extraversion (agreeableness) is negatively (positively) associated with earnings. In either case, however, the estimates are imprecise. We conclude from this that the labour market consequences of having higher agreeableness and extraversion are likely to be positive but modest in size.

Conclusions

The constant decline of enrolment in classical studies in Italian high schools have spurred a debate about whether this curriculum needs a substantial reform. In defense of the classical lyceum, many have argued that it increases openness and conscientiousness, two important personality traits. Our empirical evidence does not confirm this line of defense. Although classical studies could have many other merits, these do not include higher openness or conscientiousness. Rather, graduates of classical lycei show a higher degree of agreeableness and extraversion than graduates of scientific lycei. While higher extraversion is associated with higher employability, both traits are unrelated to earnings, suggesting that the labour market payoffs of being more extrovert and agreeable are likely to be minor.

These findings cast doubts on the view that classical studies are obsolete, for reasons however that differ from popular views about higher openness and conscientiousness. Current forecasts of the future demand of skills suggest that skills perceived by employers to be in growing demand are: critical thinking analysis, problem solving, self – management, technology use and development and working with people.[6] Online vacancy data on entry-level jobs, which are typically filled by the young, suggest that the skills most sought by employers are communication skills, customer service orientation, teamwork, problem-solving, organizational skills, planning and proficiency in computer applications,

[6] World Economic Forum, 2021.

sales and writing. In addition, employers expect all potential employees to have general ICT skills such as computer literacy and a good knowledge of word processing and basic data processing programs (ILO, 2021).

Individuals who are more extroverted and agreeable tend to have more positive attitudes towards learning communication skills. They are more apt at working with others and more likely to engage in social interactions, be friendly, flexible, and cooperative, which are important factors in effective communication and teamwork. By developing these skills to a higher extent than other academic high schools, classical lycei may still have a role to play in the future of work.

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Table 1. Definition of personality traits

Big Five personality traits	Positive component	Negative component
Openness (OP)	Open to experience (OX)	Conservative (CN)
Agreeableness (AG)	Loving/altruistic (LA)	Litigious (LI)
Conscientiousness (CO)	Self-disciplined (SD)	Careless/disorderly (CD)
Extraversion (EX)	Exuberant (ET)	Quiet/private (PV)
Neuroticism (NE)	Anxious (AN)	Emotionally stable (ES)

Source: our elaboration based on PLUS 2018 data.

Table 2. Big Five personality traits and other characteristics by type of academic high school

Variable	Classical Lyceum	Scientific Lyceum
Openness	9.70 (2.38)	9.49 (2.32)
Agreeableness	10.66 (2.27)	10.67 (2.17)
Conscientiousness	11.55 (2.31)	11.45 (2.20)
Extraversion	8.16 (2.98)	7.74 (2.84)
Neuroticism	6.48 (2.70)	6.04 (2.64)
Female	0.63	0.47
Age	41.12 (13.32)	37.91 (12.96)
Grew up in the South	0.59	0.51
Mother has college degree	0.26	0.19
Father has college degree	0.33	0.22
Mother has high ranked job	0.09	0.07
Father has high ranked job	0.28	0.21
Stand. exit score junior high school	0.03	0.00
Liked math at 13	0.02	0.04
Liked music and arts at 13	0.05	0.03
Number of observations	3,312	6,496

Note: weighted means, using the weights provided by PLUS. Standard deviations within parentheses.

Table 3. The association between a classical curriculum and personality traits. Individuals aged 19 to 64. Ordinary least squared estimates.

Variables	Openness	Agreeableness	Conscientiousness	Extraversion	Neuroticism
Classical curriculum	0.027	0.014	0.103*	0.098	0.123*
	(0.060)	(0.056)	(0.055)	(0.072)	(0.065)
Mean	9.491	10.710	11.550	7.768	6.127
Observations	9,808	9,808	9,808	9,808	9,808

Note: each regression includes a quartic in age, gender, parental education and occupation, the standardized score at the end of junior high school, attendance of kindergarten, height, whether liked math, music or the arts at 13, dummies for missing values, macro regions by cohort dummies and the interactions of age, parental education and occupation with the standardized score, gender and region; parental education and occupation with age; age with whether liked math or music at age 13; age with the standardized score; height with gender and region; gender with region, the standardized score and whether liked math or music and the arts at age 13. By region we mean the region where the individual grew up. Standard errors within parentheses; *: significant at 10% level.

Table 4. The effect of SH, the share of students enrolled in classical studies in the region where the individual grew up when the individual was 14 on the probability of enrolling in classical studies. Linear Probability model.

Variables	Probability of choosing classical studies
SH	0.432***
	(0.119)
F-test for weak instruments	13.06
Oster bound	0.240
Observations	9,808

Note: the regression includes a quartic in age, gender, parental education and occupation, the standardized score at the end of junior high school, attendance of kindergarten, height, whether liked math, music or the arts at 13, dummies for missing values, macro regions by cohort dummies and the interactions of age, parental education and occupation with the standardized score, gender and region; parental education and occupation with age; age with whether liked math or music at age 13; age with the standardized score; height with gender and region; gender with region, the standardized score and whether liked math or music and the arts at age 13. By region we mean the region where the individual grew up. Oster's bound is the estimate of the parameter of interest when un-observables and observables are assumed to have the same impact on outcomes. Standard errors within parentheses; *** significant at 1% level.

Table 5. The effect of a classical curriculum on personality traits. Individuals aged 19 to 64. Reduced Form and Instrumental Variables estimates.

Variables	Openness	Agreeableness	Conscientiousness	Extraversion	Neuroticism
Reduced form					
Classical curriculum	0.894	1.381**	0.457	1.890**	-0.109
	(0.612)	(0.585)	(0.590)	(0.786)	(0.729)
Oster bound	1.107	3.026	-0.135	2.682	-0.033
Instrumental variables					
Classical curriculum	2.070	3.199*	1.059	4.377**	-0.253
	(1.486)	(1.666)	(1.686)	(2.118)	(1.686)
Mean	9.491	10.710	11.550	7.768	6.127
Observations	9,808	9,808	9,808	9,808	9,808

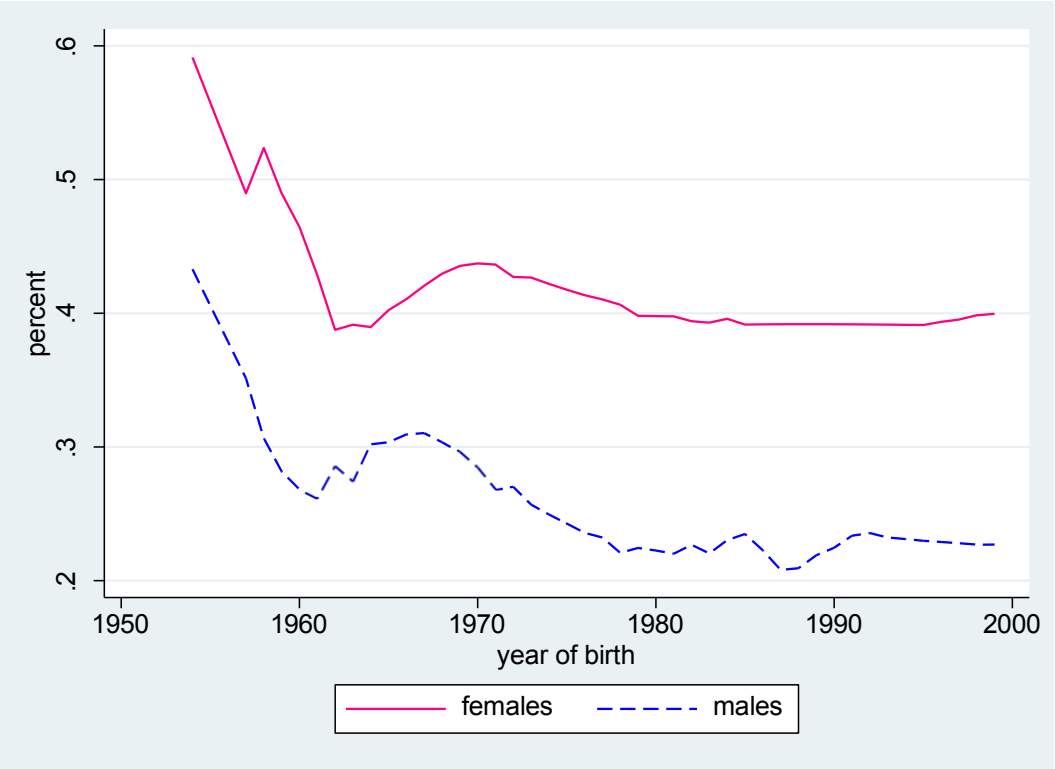
Note: each regression includes a quartic in age, gender, parental education and occupation, the standardized score at the end of junior high school, attendance of kindergarten, height, whether liked math, music or the arts at 13, dummies for missing values, macro regions by cohort dummies and the interactions of age, parental education and occupation with the standardized score, gender and region; parental education and occupation with age; age with whether liked math or music at age 13; age with the standardized score; height with gender and region; gender with region, the standardized score and whether liked math or music and the arts at age 13. By region we mean the region where the individual grew up. Oster's bound is the estimate of the parameter of interest when un-observables and observables are assumed to have the same impact on outcomes. Standard errors within parentheses; *** significant at 1% level; **significant at 5% level, *significant at 10% level.

Table 6. The effect of the Big Five traits on employment and log earnings. Individuals aged 19 to 64. Ordinary least squares estimates.

Variables	Employment	Log earnings
Conscientiousness	0.014***	0.007
	(0.004)	(0.007)
Openness	0.002	0.011
	(0.004)	(0.014)
Extraversion	0.017***	-0.017
	(0.004)	(0.014)
Agreeableness	-0.005	0.007
	(0.004)	(0.014)
Neuroticism	-0.014***	-0.006
	(0.004)	(0.017)
Observations	9,808	5,677

Note: each regression includes a quartic in age, gender, parental education and occupation, the standardized score at the end of junior high school, attendance of kindergarten, height, whether liked math, music or the arts at 13, dummies for missing values, macro regions by cohort dummies and the interactions of age, parental education and occupation with the standardized score, gender and region; parental education and occupation with age; age with whether liked math or music at age 13; age with the standardized score; height with gender and region; gender with region, the standardized score and whether liked math or music and the arts at age 13. By region we mean the region where the individual grew up. Standard errors within parentheses; *** significant at 1% level; **significant at 5% level, *significant at 10% level.

Figure 1. Share of students enrolled in classical studies. By cohort and gender.



Source: National Statistical Institute (ISTAT) and Italian Ministry of Education (MUR).