Adolescent Core Self-Evaluation and Adult Interpersonal Trust: Evidence from the 1970 British Cohort Study*

Anna Adamecz, Hubert János Kiss

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Abstract

This paper investigates whether adolescents' core self-evaluation (CSE), a broad personality construct capturing individuals' appraisal of their self-worth and capabilities, predicts interpersonal trust decades later. Using nationally representative longitudinal data from the 1970 British Cohort Study, we construct CSE measures from self-esteem, locus of control, and emotional stability at age 16 and examine their relationship with trust reported at ages 34, 42, 46, and 50. We find that higher adolescent CSE is consistently and positively associated with greater trust in others later in life. Each component of CSE independently predicts trust, and the composite index shows robust associations even after controlling for demographic background, cognitive skills, and early mental health. The estimated associations are comparable in magnitude to those between trust and cognitive ability. They are stable over time and are not explained by selection to the sample, educational attainment, labor market success, or family formation. Importantly, we find that the relative importance of CSE components varies by adolescent mental health: locus of control is more predictive among individuals with better mental health, while emotional stability plays a stronger role among those with elevated depressive symptoms. These findings underscore the long-term social relevance of core self-evaluation and highlight its importance as a psychological antecedent of trust.

Keywords: Interpersonal trust; Core self-evaluation; Personality traits; Longitudinal analysis; 1970 British Cohort Study; Non-cognitive skills

JEL codes: D01; D91; J19

1 Introduction

A large body of literature has documented the benefits of trust in others. Aggregated at the country level, trust (often as a key constituent of social capital (Putnam, 1993)) is associated with economic development (Knack and Keefer, 1997), stability of democracy (Warren, 2018), lower incidence of corruption (Rothstein and Uslaner, 2005), lower income inequality (Uslaner, 2008), and lower rates of delinquency (Halpern, 2001). On the individual level, trust is correlated with more active community life (Stolle, 1998), better schooling (Nie et al., 1996), higher income (Li et al., 2005), better health (Barefoot et al., 1998), and subjective well-being (Dolan et al., 2008).

Two widely cited definitions illustrate what trust entails. According to Mayer et al. (1995), trust is "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party." Similarly, Rotter (1971) defines trust as "an expectancy held by an individual or a group that the word, promise, verbal or written statement of another individual or group can be relied on." Although definitions of trust vary, they share a common thread: individuals who trust are willing to accept vulnerability or take risks that stem from another person's behavior.

In this study, we take a step back and investigate which individual factors predict trust. A useful approach to this end is the framework proposed by Judge (1997) who proposes the use of *core evaluations* that capture fundamental and subconscious views and assumptions that individuals have about themselves, other people, and the world. He argues that trust belongs to the *core evaluations of others*, that is what an individual assumes about others (e.g. do they have good intentions in general, or are they going to hurt). In contrast, *core self-evaluation* expresses individuals' fundamental appraisals of their self-worth and capabilities. A benefit of core self-evaluations is that it is an integrative concept that includes four key elements (Judge et al., 1998) that are widely studied in the literature. These traits are self-esteem, self-efficacy, locus of control and emotional stability (or its reverse, neuroticism). Notably, according to Judge et al. (2002), self-esteem, emotional stability, and locus of control are among the most frequently studied personality traits in psychology.

Surprisingly little is known about the relationship between core evaluations of others and CSE. Only a few studies have explored this connection. Judge et al. (1998), for example, measure both constructs and report significant correlations in the expected direction. Subsequent research shows that individuals with high CSE tend to interpret others' evaluations and social feedback more positively, feel more empowered in social interactions, and report greater motivation and satisfaction. In contrast, those with low CSE are generally more sensitive to negative feedback and less confident in social settings (Judge et al., 2005; Judge, 2009; Kamer and Annen, 2010). These findings align with theoretical expectations. Social comparison theory (Buunk and Gibbons, 2007; Gerber et al., 2018) supports this idea: people develop their self-concept in part

through comparisons with others, shaping both how they see themselves and how they evaluate others.

The scant evidence on the relationships between trust (an element of core evaluations of others) and CSE has been established contemporaneously. In contrast, this study investigates how elements of core self-evaluation measured at age 16 are associated with interpersonal trust 18, 26, 30, and 34(-35) years later. More precisely, we use data from the 1970 British Cohort Study to see if self-esteem, locus of control, emotional stability, and a core self-evaluation index created from these traits are associated with trust later in life even after controlling for a wide range of factors, such as family background and cognitive skills.

Our contributions to the existing literature are manifold. We do not analyze only one, but three of the most widely studied traits, and a CSE index computed using these traits. As discussed in section 2.1, for self-esteem and locus of control, there are only a few studies that examine the relationship between these traits and trust using a regression framework. Furthermore, we do not focus on contemporaneous associations, but investigate if trust later in life is associated with (elements of) CSE in adolescence. We find that self-esteem, locus of control, and emotional stability are positively related to trust later in life. When included separately in OLS regressions, each trait is significant at 0.1% (p<0.001) at all ages studied. Interestingly, the standardized coefficient of the traits does not tend to decrease over time, that is the relationship generally is not weaker at age 50 than at age 34. When entering all the traits in the regressions, at age 34 self-esteem, then at ages 42 and 46 locus of control, and later (at age 50) emotional stability seems to be the factor with the highest predictive power. Regarding the CSE index, it proves to be significant at 1% (p<0.001) at all ages considered, and the magnitude of the coefficient does not decrease over time. Note that we obtain these findings after controlling for the region at birth, parental socioeconomic status, maternal education, ethnicity, a composite measure of cognitive skills at ages 5-16, and in some specifications, own mental health at age 16 and maternal mental health at age 5, as two potentially important confounders. Although we use an extensive set of control variables that might be responsible for potential mechanisms through which elements of CSE and the CSE index are correlated with trust, our findings cannot be interpreted as causal as we cannot rule out the existence of unobserved variables that might affect both CSE and trust in others.

Investigating the heterogeneity of the relationship between adolescent CSE and adult trust by gender, socioeconomic status, graduation and maternal mental health, we do not find meaningful differences. Similarly, we find no evidence that this relationship goes through labor market (employment, wage) or relationship success (having partner, having children). However, the mental health of individuals is important. As emotional stability and mental health are closely related concepts (Sutton et al., 2011), we split the sample to individuals with low versus high levels of physical depressive symptoms at age 16. Looking at the association between (the elements of) CSE and trust within these two subsamples, we find that on average, CSE matters roughly the same in the

3

two groups. However, among those with low levels of depressive symptoms, locus of control, while among those with high levels of depression, emotional stability matters the most. This suggests that the relationship between the elements of CSE and trust are heterogeneous by mental health.

The rest of the study is structured as follows. Section 2 summarizes the literature on core self-evaluation, its components, and trust. Furthermore, it also presents the channels through which core self-evaluation and its components may be related to trust. In section 3, we present the data and descriptive statistics. Section 4 describes the empirical methods. Section 5 contains the results, while section 7 concludes with a discussion.

2 Literature review

2.1 Core self-evaluation

The origins of core evaluations date back to Packer (1985a,b), who argued that fundamental appraisals, known as core evaluations, influence how individuals assess specific situations. Building on this, Judge (1997) proposed that these appraisals reflect broad, underlying personality traits. Judge et al. (1998) identified four components of *core self-evaluation*: *self-esteem*: one's sense of self-worth (Rosenberg, 1965); *self-efficacy*: confidence in achieving goals (Bandura, 1977); *locus of control*: belief in personal influence over outcomes (Rotter, 1966); and *emotional stability*: a tendency toward calm and consistent emotional responses, as opposed to neuroticism (VandenBos, 2007).

These traits follow a common developmental path: they generally increase from childhood through early adulthood, stabilize in midlife, and decline in older age (McCrae and Costa Jr, 1994; Soldz and Vaillant, 1999), with similar patterns observed for specific traits such as self-esteem (Trzesniewski et al., 2013), self-efficacy (Gecas, 1989), locus of control (Elkins et al., 2017), and emotional stability (Borghuis et al., 2017). Growth is not always linear, however, temporary dips are common, and the timing of personality maturation varies (Bleidorn et al., 2013). High rank-order stability and moderate correlations across ages (around 0.5, occasionally reaching 0.7) suggest that adolescents who score highly on these traits tend to retain their relative standing into adulthood (Almlund et al., 2011; Specht et al., 2011). The relative stability of self-esteem, self-efficacy, internal locus of control, and emotional stability may be a necessary condition for their observed association with trust decades later, as traits that fluctuate erratically over time are unlikely to exhibit such persistent, long-term relationships.

There are two main approaches to measuring core self-evaluation. The direct approach uses the validated Core Self-Evaluation Scale (Gardner and Pierce, 2010; Stumpp et al., 2010). The indirect approach assesses the individual traits separately. Some studies include all four traits and aggregate them (e.g. Johnson et al. (2006); Srivastava et al. (2010)), while others analyze the traits individually (Creed et al., 2009; Judge et al., 2008). More sophisticated methods construct a CSE index using principal components

4

or factor analysis (Johnson et al., 2003; Piccolo et al., 2005). Studies omitting some traits risk biasing results (Johnson et al., 2008).

2.2 Trust

Trust is a multifaceted concept. We focus on interpersonal trust, the willingness to rely on another person, which is distinct from institutional trust. It is typically measured through experimental tasks or surveys.

Experimentally, trust is often assessed using the investment game (Berg et al., 1995), where one player (the trustor) sends money to another (the trustee), with the amount sent interpreted as trust. The trustee then decides how much to return, reflecting trustworthiness.

Surveys commonly use questions like that in the World Values Survey (WVS) and General Social Survey (GSS): *"Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?"* (Sapienza et al., 2013) show that survey-based trust reflects beliefs about others' behavior, while experimental trust reflects both beliefs and preferences. We focus on survey-based measures of trust, often referred to as generalized trust.

Trust tends to be positively associated with favorable socioeconomic status. Education, income, age, gender, and marital status are commonly linked to higher levels of trust (Helliwell and Putnam, 1999; Glaeser et al., 2000; Alesina and La Ferrara, 2002), and trust also increases with cognitive ability (Falk et al., 2018; Sturgis et al., 2010), possibly due to a greater capacity to assess others' intentions. However, not all findings align with this general pattern. Ermisch et al. (2009) find no consistent links with age, gender, or homeownership, while Dohmen et al. (2012) report a decline in trust with age and a positive relationship with settlement size. Falk et al. (2018) also find that women may be more trusting, contrary to earlier studies.

While we do not aim to resolve these discrepancies, we account for a wide range of demographic and socioeconomic controls to ensure our estimates are not confounded by such background factors.

2.3 Relationships between core self-evaluation and trust

A growing literature explores how components of core self-evaluation, self-esteem, emotional stability (the inverse of neuroticism), and locus of control relate to interpersonal trust. Three consistent patterns emerge.

First, individuals with higher self-esteem tend to report greater trust, as reflected in a positive correlation—for instance, a coefficient of 0.22 reported by He (2022). This association may be explained by several mechanisms. High self-esteem promotes self-disclosure and social openness, which foster intimacy and trust (McCarthy et al., 2017; Gaucher et al., 2012). People with high self-esteem are typically confident that others view them positively (Leary and Baumeister, 2000; Murray et al., 2006), are less likely to conceal their flaws (Baumeister et al., 1989), and tend to behave more transparently. In

contrast, low self-esteem is linked to guardedness, often rooted in fear of rejection (Leary, 2005; Anthony et al., 2007; Park and Maner, 2009; Cameron et al., 2010). A meta-analysis by Cameron and Granger (2019) finds that high self-esteem predicts warmer behavior and stronger social ties. While some suggest a bidirectional link between self-esteem and social connection (Harris and Orth, 2020), the dominant evidence points from self-esteem to trust.

Second, emotional stability is positively associated with trust. Individuals high in neuroticism are prone to anxiety and negative interpretations of social situations, undermining trust formation (Müller and Schwieren, 2020; Ben-Ner and Halldorsson, 2010; Dohmen et al., 2008; Ermisch et al., 2009; Becker et al., 2012). Neurotic individuals perceive more social threat and have weaker networks (Gunthert et al., 1999; Klein et al., 2004), which may limit trust opportunities. Emotionally stable individuals, by contrast, tend to form broader, more supportive relationships (Johnson et al., 2003).

Third, locus of control also matters. Those with an internal locus of control—believing that they influence their own outcomes—tend to show stronger other-regarding preferences (Fanghella et al., 2023) and are more socially engaged. Early work by Hamsher et al. (1968) linked an internal locus to prosociality. Consistent with this, individuals with an external locus of control have been found to exhibit lower trust in others, including authority figures such as physicians (Gopinath et al., 2000). Becker et al. (2012) find a correlation of 0.21 between an internal locus of control and generalized trust. Belief in personal control may thus foster greater interpersonal trust.

In sum, each of the main CSE components is theoretically and empirically linked to trust. Yet much of the evidence is cross-sectional or correlational. Regression-based analyses are more common for emotional stability and locus of control, while self-esteem has received less systematic treatment. Longitudinal studies on these relationships remain scarce; Tables A1 and A2 in Online Appendix A summarize the existing literature.

3   Data and descriptive statistics

We use the 1970 British Cohort Study (BCS70, CSL (2023)) that follows a cohort born in the UK, currently until age 51. The birth sample includes 16,135 cohort members, representing 96% to 98% of all births in the UK during the week of April 5–11, 1970 (Plewis et al., 2004). Because all births from that week are included, there is no sampling unit to account for. The study collects rich data on the cohort members' characteristics, including family background, educational attainment, cognitive and non-cognitive skills, and life outcomes like relationships, employment, wage, and fertility.

Measuring core self-evaluation We construct measures of self-esteem, locus of control, and emotional stability using the age 16 wave. These variables are also available at age 10; however, as discussed in Section 2.1, we consider age 16 to be a more appropriate time point, as these traits may undergo significant changes between ages 10 and 16, but tend to stabilize thereafter. All three variables are measured via self-administered questionnaires, hence the probability of social desirability bias (the tendency of individuals

reporting what they think is expected of them) is lower than in the case of face-to-face or phone interviews. Self-esteem is measured using the LAWSEQ questionnaire (Lawrence, 1981), which assesses children's self-perception in relation to teachers, peers, and parents. It was originally developed to identify children with low self-esteem and has been widely used in research on academic attainment (Hart, 1985; Davies and Brember, 1999; Murasko, 2007), as well as in studies examining childhood obesity (Ternouth et al., 2009) and smoking (Saari et al., 2015). The scale consists of 10 items, such as "Do you feel silly when you have to talk in front of a teacher?" or "Are there lots of things that you would like to change about yourself?" The full list of questions is presented in Table A3 in Online Appendix A. As these are categorical items, we employ Item Response Theory (IRT) to construct a continuous measure of self-esteem, following Edelen and Reeve (2007).

Emotional stability is constructed using seven questions on feelings and emotions like 'Do you ever get in a violent rage?' or 'Are you easily upset or irritated?'. The list of all questions is presented in Table A4 in Online Appendix A. We use IRT to construct a measure of emotional stability from these questions. Note that these questions were asked as elements of the Malaise inventory (Rutter et al., 1970; Rodgers et al., 1999), traditionally used to measure general psychological distress (symptoms of depression and anxiety). The inventory consists of 24 questions, and we include seven of these to construct the emotional stability measure. We use the remaining 15 questions about physical symptoms, such as backache and poor appetite, and fear (Table A4 in Online Appendix A) to construct a measure of depressive symptoms that we use in the heterogeneity analysis to uncover the mechanisms behind the relationship between CSE and trust (see more details on this in the next section).

The 1970 British Cohort Study uses the CARALOC questionnaire to measure locus of control. This instrument is a general locus of control measure developed for children (Gammage, 1975, 1982), and is similar in structure to the widely used scale by Nowicki and Strickland (1973). The CARALOC consists of 18 items, such as "When bad things happen to you, is it usually others' fault?" or "Is a high mark just a matter of luck for you?" The full list of questions is presented in Table A5 in Online Appendix A. Similarly to the LAWSEQ measure, CARALOC has been applied in studies predicting academic, labor market, and health outcomes. Research consistently finds that external locus of control is associated with less favorable results across these domains (Murasko, 2007; Ternouth et al., 2009; Knapp et al., 2011; Betthäuser et al., 2020). We use Confirmatory Factor Analysis (CFA) (Thompson and Daniel, 1996) to construct a measure of internal locus of control based on responses to the CARALOC items.

There is no proper self-efficacy measure in the 1970 British Cohort Study at age 16. We deal with the lack of such a measure in two ways. First, we construct our CSE-measure using only the three elements that we have explicit data for: self-esteem, emotional stability, and locus of control. Second, as a proxy for self-efficacy, we use respondents' self-assessed ability using questions such as *Are you good at mathematics?* (Yes/No/I don't know) and *Please say whether the following applies to you: I am clever.*

7

(Applies very much/Applies somewhat/Does not apply) (Table A6 in Online Appendix A). Such questions are often used to measure academic self-concept (Shavelson et al., 1976; Marsh, 1990). Self-concept is tightly related to self-efficacy. Although many studies detect distinctions in some aspects, most of them report also close relationships between the two concepts, correlations being generally over 0.4 (Bong and Skaalvik, 2003; Huang, 2012; Jansen et al., 2015; Marsh et al., 2019). Going beyond correlations, Ferla et al. (2009) and Arens et al. (2022) find that academic self-concept strongly shapes academic self-efficacy beliefs, and not vice versa. Overall, self-concept seems to be an appropriate proxy for self-efficacy. Thus, we will also construct a 4-item CSE-index that includes self-concept and show that our main results using the 3-item and the 4-item measures are similar.

Measuring trust Trust is measured in three distinct ways at ages 34, 42, 46, and during the COVID-19 pandemic (see Table A7 in Online Appendix A). For our main analyses, we use the measure from the age 46 wave, which includes a question from the World Values Survey (WVS) and the General Social Survey (GSS): "Generally speaking, would you say that most people can be trusted, or that you cannot be too careful in dealing with people?" (response options: Yes / No / It depends). This is our preferred measure because it is widely used in the literature, allowing for comparability with other studies. In addition, the age 46 survey was conducted in 2016, a period of relative stability, without major external shocks. In contrast, the age 42 wave (in 2012), although using the same trust question, took place in the aftermath of the Global Financial Crisis. The pandemic waves, meanwhile, asked respondents to rate how trusting they felt on an 11-point self-assessment scale, making them less comparable. Similarly, at age 34, trust was assessed in relation to the local community with the question: "How much do you trust people in your local area?"—a formulation that differs substantially from the generalized trust measures used in other waves and studies.

For our main results, we recode all trust variables such that higher numerical values represent higher levels of trust, and standardize them to have a mean of zero and a standard deviation of one, to ensure comparability across waves. In our main specification, trust is treated as a continuous variable, though we also provide robustness checks using the original categorical responses.

While all trust measures tap into generalized interpersonal trust, the exact phrasing of the question varies slightly across waves (see Table A7 in Online Appendix A for details). We account for these differences in our robustness analyses.

Control variables There may be confounders (e.g. socioeconomic status or cognitive skills) that are associated both with components of CSE (or the CSE-index) and trust. As a consequence, omitting these variables, we may find significant associations between elements of CSE, the CSE-index and trust, even if there is no genuine relationship. To address this concern, we include an extensive set of control variables in our analysis. On the one hand, we use controls identified in the literature as relevant correlates of trust (see Section 2.2). On the other hand, we incorporate controls (when available) that have been used in studies examining the direct relationship between personality traits, the

CSE index, and trust (see Tables A1 and A2 in Online Appendix A). Accordingly, our regression models control for a broad set of background characteristics. These include the region of birth within the UK and ethnicity, categorized as English, Irish, Other European, West Indian, Indian, Pakistani, Bangladeshi, or Other. We also control for parental socioeconomic status (SES) at the time of birth, based on the NS-SEC classification. This is coded as a binary variable distinguishing between low and high SES: the low-SES category includes parental NS-SEC codes such as "Single parent or not working," "Other category," "V unskilled," "IV partly-skilled," or "III manual," while the high-SES group includes "III non-manual," "II managerial and technical," and "I professional." In addition, we account for whether the cohort member's mother had any formal qualification at the time of the member's birth.

To capture cognitive ability, we construct a standardized index based on 18 cognitive tests administered at ages 5, 10, and 16 (Table A8 in Online Appendix A). These tests span multiple domains, including mathematics, English, and IQ. We aggregate these continuous measures using confirmatory factor analysis (CFA), resulting in a single continuous cognitive skills index.

As a robustness check, we also incorporate educational attainment in some specifications. This includes indicators for whether the cohort member attended a private or grammar school, math exam grades at age 16 (based on O-level or CSE examinations, with seven categories), completed any A-level examinations, or holds a university degree (BA/BSc or above). We handle educational attainment separately from the baseline control variable because these were measured after self-evaluation.

In additional specifications, we also control for maternal mental health, measured via the Malaise Inventory when the cohort member was aged 5. However, because this variable is not available for all individuals and including it would substantially reduce the sample size, we exclude it from the main models and explore its role in supplementary analyses. Similarly, we examine the role of depressive symptoms measured at age 16 via additional Malaise Inventory items as part of our heterogeneity analysis.

Potential channels after adolescence We investigate potential channels underlying our results. First, stable and supportive relationships foster emotional security, social support, and resilience—factors that promote trust. Parenthood and partnership may enhance attachment and caregiving bonds, which are closely linked to trust (Johnson et al., 2003, 2006; Kim et al., 2025; Liao et al., 2025). To examine this pathway, we use variables indicating whether cohort members had a cohabiting partner or a biological child at age 42, assessing whether CSE is related to trust through the formation of stronger interpersonal relationships. A second potential channel is labor market success. Individuals who are employed and successful in their workplace may exhibit higher levels of generalized trust (Alesina and La Ferrara, 2002; Helliwell and Putnam, 2004). To capture this, we use variables indicating whether cohort members were employed and their log hourly wages (used as a proxy for workplace productivity) at age 42, in order to test whether CSE is associated with trust through labor market outcomes. All of these variables are self-reported in the BCS70.

Analytical sample For our main analysis at age 46, we restrict the sample to individuals who participated in the age 16 and age 46 waves and provided data on all variables that we need (number of individuals: 2,559). We investigate how this subsample is selected compared to the first two waves of BCS70 (ages 0 and 5) and provide robustness checks where we take care of this selection using several re-weighting methods.

For our models that investigate trust at other ages, we always use the largest possible sample for the particular age group. As participation differed between waves (not everybody provided data in all waves), sample size varies across these models. Furthermore, in the graphs where we plot trust in all available ages, we restricted the sample to those who participated and provided data in all relevant waves (N=1,645). We also provide a robustness check to our main results to show that results estimated on the age-specific samples and the all-age-available sample are very similar.

Descriptive statistics Table 1 shows the correlation structure between the elements of CSE, the 3-item and 4-item CSE indices, and trust. The correlation between the 3-item and 4-item CSE indices is notably high (0.947), while the correlations between the indices and their individual components are low to moderate. The correlation between trust measures at different ages is also low to moderate, with stronger correlations observed between measurements taken closer together in time. It is also important to note that the questions underlying the age-specific trust measures differ slightly, as previously detailed.

The distribution of the CSE indices is presented in Figure A1 in Online Appendix A. Most individual traits, as well as the two CSE indices, follow a roughly normal distribution. However, locus of control is skewed to the right, indicating that slightly more individuals in our sample exhibit a stronger internal locus of control.

Table 1: The correlation table of the main measures

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) Self-esteem, std	1.000									
(2) Emotional stability, std	0.421	1.000								
(3) Locus of control, std	0.421	0.326	1.000							
(4) Self-assessed ability, std	0.182	0.151	0.503	1.000						
(5) Core self-evaluation, 3-item std	0.811	0.748	0.750	0.358	1.000					
(6) Core self-evaluation, 4-item std	0.722	0.650	0.820	0.635	0.947	1.000				
(7) Trust at age 34, std	0.149	0.079	0.146	0.085	0.163	0.165	1.000			
(8) Trust at age 42, std	0.103	0.085	0.194	0.199	0.164	0.207	0.174	1.000		
(9) Trust at age 46, std	0.117	0.088	0.193	0.145	0.171	0.195	0.181	0.425	1.000	
(10) Trust at age 50, std	0.086	0.107	0.088	0.052	0.122	0.118	0.175	0.230	0.358	1.000

Notes: Source: BCS70 (CSL, 2023). No. of observations: 1,645. All measures are standardized to mean zero and standard deviation 1.

Figure 1 plots trust levels in all ages along the percentiles of CSE in adolescence. There is a strong linear relationship between CSE and trust in all ages. The same graph using the 4-item measure shows the same phenomenon (Figure A5 in Online Appendix A). Corresponding graphs for the individual personality traits are shown in Figures A2–A4 in Online Appendix A.
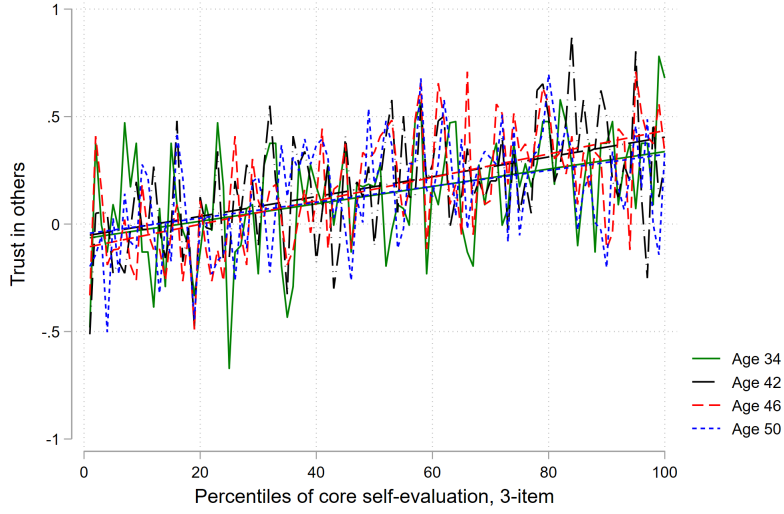
Figure 1: Trust along the distribution of core self-evaluation (3-item measure)

Source: BCS70 (CSL, 2023). No. of observations: 1,645.

4 Empirical methods and robustness checks

First, we investigate how individual characteristics predict the CSE score to understand what kinds of characteristics drive core self-evaluation. We estimate the following linear regression model:

$$CSE_i = \alpha + X_i\delta + u_i \tag{1}$$

Where,

CSE_i is the 3-item CSE measure at age 16

i represents the individual

X_i is a matrix of control variables that we extend in three steps: in Model 1, we include our main control variables as discussed above, in Model 2, we also add whether their fathers had a qualification and a binary variables indicating low (<2500g birth weight), while in Model 3, we also control for maternal mental health at age 5. Note that extending the model decreases the number of observations in the sample, hence we add them in stages.

u_i is the usual heteroscedasticity-robust error term.

Then, we start investigating the statistical relationship between trust and CSE using linear regression models. We estimate the following model:

$$Trust_{i,age} = \alpha + \beta CSE_i + X_i\delta + u_{i,age} \qquad (2)$$

Where,

> age represents the age of observation of trust (age 34, 42, 46 or 50)

> i represents the individual

> CSE_i is either one of our CSE measures (3-item or 4-item), or one of the individual character traits, all measured at age 16

> X_i is a matrix of control variables discussed in the previous section

> $u_{i,age}$ is the usual heteroscedasticity-robust error term.

In this model, β, the estimated parameter of the CSE measure, captures the linear statistical relationship between CSE and trust, conditional on X_i.

We provide the following robustness tests. As mentioned above, in our main specification, we rely on the more conservative 3-item CSE score and measure trust at age 46. Accordingly, we perform robustness checks using all available trust measures at ages 34, 42, and 50, and re-estimate all models using the 4-item CSE measure as well.

Second, we provide robustness checks to show that selection into the analytical sample—i.e., attrition and non-response—does not drive our results, using two methods. First, using data from the first two waves (ages 0 and 5), including sex at birth, region of birth, parental socioeconomic background, parental education, ethnicity, low birthweight (< 2500 g), and mother's year of birth, we model the probability of being in the analytical sample with a probit model. We then re-estimate our main results using the inverse of these predicted probabilities as analytical weights. Second, we apply *entropy balancing* (Hainmueller, 2012), a re-weighting technique, to adjust the analytical sample so that it matches the observable characteristics of those who were excluded.

Lastly, since trust in the age 46 wave is measured as a 3-category variable, we also re-estimate our main results using multinomial logit models. These procedures yield conclusions similar to those from our main empirical strategy.

Heterogeneity analysis, potential channels and non-linearities. Lastly, we aim to uncover the potential channels behind the strong relationship between CSE and trust in others through several approaches.

There are well-established theoretical and empirical reasons to expect heterogeneity in the relationship between CSE and interpersonal trust across key demographic and developmental dimensions.

Gender differences in both self-concept and trusting behavior have been widely documented. Women and men may differ in how self-esteem or emotional stability influence their perceptions of others and willingness to trust, as shown in research on self-esteem

differences (Kling et al., 1999; McCarthy et al., 2017) and gendered patterns of trust in behavioral games (Buchan et al., 2008; Croson and Gneezy, 2009).

Second, individuals from disadvantaged social backgrounds often develop lower self-evaluations due to environmental adversity, and are also found to exhibit lower levels of generalized trust (Alesina and La Ferrara, 2002; Schoon, 2006). These contextual influences may condition the link between CSE and trust.

Third, early exposure to maternal mental health difficulties, such as depression, has been associated with long-term effects on children's emotional regulation, social development, and attachment style (Cummings and Davies, 1994; Goodman et al., 2011b). Such early-life environments may shape both core self-evaluations and interpersonal expectations, including trust.

Finally, cognitive ability may act as a moderator in the CSE–trust relationship. Individuals with higher cognitive skills are more likely to form generalized trust, possibly because they better process social information and interpret others' behavior more accurately (Sturgis et al., 2010). Cognitive and non-cognitive traits interact in complex ways that affect social preferences and perceptions (Almlund et al., 2011).

We also investigate whether intermediate outcomes at age 42 mediate the relationship between CSE at age 16 and trust at age 46. There is strong empirical support for the idea that adolescent core self-evaluation is related to later trust indirectly through intermediate outcomes such as educational attainment (Coleman, 1988; Helliwell and Putnam, 1999; Huang et al., 2009), labor market success and higher wealth(Judge and Bono, 2001; Helliwell and Putnam, 2004; Alesina and La Ferrara, 2002; Judge and Hurst, 2007; Drago, 2011; Bucciol and Trucchi, 2021), and the quality of close relationships (Kawachi et al., 1999; McCarthy et al., 2017). These domains are shaped by individual traits and create the social and economic environments in which interpersonal trust is cultivated or eroded. Specifically, we examine labor market (employment status and wages), education (graduation) and relationship success (having a partner or a child).

Furthermore, we explore potential non-linearities in the relationship between CSE and trust. Instead of handling the CSE score as a continuous variable, we construct terciles and look at whether the estimated coefficients on being in the lowest or highest tercile (compared to the middle) are similar in magnitude. We also estimate the relationship between the original continuous CSE score and trust within each tercile to assess whether the association is constant across the distribution. This exercise also serves as a robustness check to determine whether extreme values at either end of the distribution might be driving our results.

Lastly, we examine the role of adolescent mental health in the relationship between CSE and trust, as there is substantial evidence that mental health during adolescence, especially depressive symptoms, can influence both the development of core self-evaluation and the formation of interpersonal trust. Depression is associated with lower interpersonal trust, negative self-perceptions, and impaired social functioning, making it a plausible moderator of the CSE–trust relationship (Goodman et al., 2011a; Orth et al., 2009; Oshio et al., 2018). As detailed above, we construct a measure of depressive symptoms

13

and investigate whether the relationship differs between individuals who scored above or below the median on this measure at age 16.

5   Results

Looking at the predictors of CSE, Table A9 in Online Appendix A shows that women, on average, have CSE scores that are 0.19 standard deviations lower than those of men (in line with, for instance, Alesina and La Ferrara (2002) and Gang et al. (2020)), and this difference is statistically significant at the 0.1% level ($p<0.001$). Most other background characteristics—such as parental qualifications, SES, ethnicity, region, and low birth weight—are not significantly associated with CSE scores. However, cognitive skills measured between ages 5 and 16 exhibit a strong association: a one standard deviation increase in cognitive skills corresponds to a 0.28 standard deviation increase in CSE ($p<0.001$). Maternal mental health at age 5 also shows some association ($p=0.043$), although the estimated coefficient is small. Because gender and cognitive ability are both significant predictors of CSE and are also plausibly related to interpersonal trust, we highlight them as control variables in our regression analysis.

Table 2: The relationship between trust at age 46 and core self-evaluation

VARIABLES	(1) Model 0	(2) Model 1	(3) Model 2	(4) Model 3	(5) Model 4	(6) Model 5	(7) Model 6	(8) Model 7
Female	0.040	0.041	0.080*	0.047	0.061	0.076	0.066	0.077*
	(0.039)	(0.039)	(0.040)	(0.039)	(0.040)	(0.040)	(0.039)	(0.039)
Objective cognitive abilities, std	0.161***	0.146***	0.161***	0.097***	0.125***	0.099***	0.123***	0.096***
	(0.023)	(0.023)	(0.022)	(0.025)	(0.026)	(0.027)	(0.023)	(0.024)
Self-esteem, std		0.085***				0.032		
		(0.020)				(0.023)		
Emotional stability, std			0.099***			0.056*		
			(0.020)			(0.022)		
Locus of control, std				0.136***		0.091***		
				(0.023)		(0.027)		
Self-assessed ability, std					0.065**	0.025		
					(0.022)	(0.023)		
Core self-evaluation, 3-item std							0.134***	
							(0.020)	
Core self-evaluation, 4-item std								0.147***
								(0.022)
Constant	-0.119	-0.109	-0.148	-0.125	-0.134	-0.141	-0.129	-0.138
	(0.081)	(0.081)	(0.081)	(0.081)	(0.081)	(0.082)	(0.081)	(0.081)
Observations	2,559	2,559	2,559	2,559	2,559	2,559	2,559	2,559
R-squared	0.059	0.066	0.068	0.072	0.062	0.077	0.075	0.076

Notes: Source: BCS70 (CSL, 2023). Control variables: region at birth, parental SES, maternal qualification, ethnicity. Robust standard errors in parentheses. *p<0.05 **p<0.01 ***p<0.001

Table 2 presents our main results. First, we investigate the relationship between self-esteem, emotional stability, locus of control, and self-assessed ability (our imperfect proxy for self-efficacy) and trust at age 46, conditional on the characteristics detailed in the previous section. We find that when these adolescent personality traits are included individually, all are strongly correlated with trust in others in adulthood. When all traits are included jointly (Model 5), multicollinearity among components may attenuate some coefficients. However, locus of control ($p < 0.001$) and emotional stability ($p=0.012$) retain independent predictive power. Adding CSE and its elements increases the explained variance in trust by about 30% relative to a baseline model without them ($R^2 = 0.059$ in Model 0 vs. 0.077 in Model 5).

Replacing the individual components with the CSE index yields similarly robust results. A one-standard-deviation increase in adolescent CSE is associated with a 0.134–0.147 SD increase in trust at age 46 ($p < 0.001$). Notably, the magnitude of this association is comparable to that of cognitive skills, reinforcing the substantive importance of non-cognitive traits in shaping interpersonal trust. These results are consistent across other ages as well (Table 3). This suggests that the psychological traits captured by CSE are just as important as cognitive skills in shaping interpersonal trust.

To put our findings in context, our estimated coefficients are larger than those typically found for demographic variables such as age, gender, race, marital status, and income, and are broadly comparable in magnitude to the coefficient of having more than 16 years of education, as reported by Alesina and La Ferrara (2002). While the studies differ in some model specifications and variable definitions, they both use trust as the dependent variable and a similar econometric approach, allowing for a rough comparison of coefficient sizes.

Table 3: The relationship between trust at all ages and core self-evaluation – 3-item measure

VARIABLES	(1) Age 34	(2) Age 42	(3) Age 46	(4) Covid waves
Core self-evaluation, 3-item std	0.119***	0.100***	0.134***	0.118***
	(0.018)	(0.020)	(0.020)	(0.023)
Female	0.140***	-0.009	0.066	0.047
	(0.035)	(0.039)	(0.039)	(0.040)
Objective cognitive abilities, std	0.116***	0.214***	0.123***	-0.008
	(0.022)	(0.023)	(0.023)	(0.027)
Constant	-0.003	0.008	-0.129	0.129
	(0.071)	(0.079)	(0.081)	(0.085)
Observations	2,938	2,670	2,559	2,348
R-squared	0.055	0.077	0.075	0.037

Notes: Source: BCS70 (CSL, 2023). Control variables: region at birth, parental SES, maternal qualification, ethnicity. Robust standard errors in parentheses. *p<0.05 **p<0.01 ***p<0.001

Robustness checks are presented in Online Appendix B. The relationship between trust at other ages (34, 42, and the COVID wave) and CSE is consistent for both the 3-item and 4-item CSE measures (Tables B1–B3 in Online Appendix B). Interestingly, when examining the individual components of CSE, we find that while emotional stability and locus of control are the strongest predictors of trust at age 46, the pattern varies across ages: at age 34, self-esteem has the highest predictive power; at age 42, both emotional stability and locus of control remain important; and at age 50, emotional stability appears to be the most influential.

The estimated relationship is consistent with our main results in the overlapping sample across all ages, using both the 3-item and 4-item CSE measures (Tables B4–B6 in Online Appendix B). It also holds after controlling for post-16 educational outcomes, including A-level examinations and university graduation (Table B7 in Online Appendix B).

Selection into the analytical sample is not likely to drive our results, if anything, estimates using the total sample of BCS70 would have been even larger. Table B8 in Online Appendix B shows the balance between the main analytical sample (n=2,559) and the rest of the original sample of BCS70 (n=15,089) that we could not include due to missing data. Individuals in the analytical sample are on average more likely to be female, have higher parental SES and more educated parents than those left out. Estimating a probit selection model reveals that selection into the analytical sample is driven by most control characteristics (Table B9 in Online Appendix B). However, re-weighting the analytical sample by the inverse of individuals' predicted probabilities

of being in the sample gives results that are even stronger than our main specification (Table B10 in Online Appendix B, columns 1 and 2). Figure B1 in Online Appendix B plots the differences in individual characteristics between the analytical sample and the left-out sample, before and after entropy balancing. Again, re-weighting the analytical sample to match the observable characteristics of the left-out sample results in similar, even larger statistical associations between trust and CSE than our main models (Table B10 in Online Appendix B, columns 3 and 4).

Lastly, we re-estimate our original specification using multinomial logit models instead of linear models—i.e., taking into account that the trust measure at age 46 comprises three ordered categories (Table B11 in Online Appendix B). The original survey question was: "Whether you think most people can be trusted or that you can't be too careful," and we compare individuals who responded "Yes" (high trust) and "No" (low trust) to those who responded "It depends" (moderate trust). These results show that most elements of CSE play a significant role in making individuals more likely to trust others (compared to being hesitant rather than distrusting). Using the composite CSE measures, we also find that the estimated coefficients are larger in magnitude on the trusting side than on the distrusting side. Reassuringly, these results indicate that our findings are not driven by functional form assumptions.

Together, these findings reveal a strikingly consistent relationship between adolescent core self-evaluation and interpersonal trust decades later. The magnitude of estimated coefficients is comparable to those on cognitive skills, robust across model specifications, age windows, and alternative estimation strategies. Importantly, the association is not driven by selection, functional form assumptions, or post-compulsory educational attainment. These results position core self-evaluation as a stable and psychologically grounded predictor of interpersonal trust—one that persists across the life course and rivals some of the most studied determinants of trust in the literature.

6 Heterogeneity analysis, potential channels and non-linearities

Looking at the heterogeneity of our main results across background characteristics, we find that the relationship between trust and CSE does not differ significantly by gender, socioeconomic status, maternal mental health, or cognitive skills (Table 4).

Although these subgroup analyses reveal no significant variation in the CSE–trust relationship, this lack of heterogeneity is informative. It suggests that the trust-promoting role of core self-evaluation operates broadly across key population subgroups. In this sense, the association between CSE and trust appears to reflect a general psychological mechanism rather than one confined to specific demographic or cognitive profiles. This implies that interventions aiming to strengthen core self-evaluation, such as those promoting self-worth or emotional resilience, may be widely applicable, rather than limited in effectiveness to particular groups. Beyond subgroup differences, we next explore

whether the relationship between adolescent CSE and later trust may be mediated by life outcomes in early adulthood.

Table 4: The relationship between trust at age 46 and core self-evaluation: Heterogeneity analysis

VARIABLES	(1) Gender	(2) SES	(3) Maternal Malaise	(4) Cognitive ability
Core self-evaluation, 3-item std	0.148***	0.127***	0.094**	0.134***
	(0.031)	(0.027)	(0.033)	(0.020)
Female	0.068	0.066	0.071	0.066
	(0.039)	(0.039)	(0.042)	(0.039)
Female*CSE	-0.023			
	(0.040)			
High SES parents		0.181***		
		(0.042)		
SES*CSE		0.017		
		(0.039)		
Maternal Malaise score, age 5			-0.012	
			(0.007)	
Maternal Malaise*CSE			0.010	
			(0.006)	
Cognitive ability	0.122***	0.123***	0.127***	0.122***
	(0.023)	(0.023)	(0.025)	(0.023)
Cognitive ability*CSE				-0.004
				(0.020)
Constant	-0.130	-0.130	-0.095	-0.129
	(0.081)	(0.081)	(0.091)	(0.081)
Observations	2,559	2,559	2,230	2,559
R-squared	0.075	0.075	0.079	0.075

Notes: Source: BCS70 (CSL, 2023). Control variables: region at birth, parental SES, maternal qualification, ethnicity. Robust standard errors in parentheses. *p<0.05 **p<0.01 ***p<0.001

In terms of potential channels, we find that CSE is positively associated with a range of intermediate outcomes: individuals with higher CSE are more likely to have a partner and a child, to have graduated from university, to be employed, and to earn higher log hourly wages at age 42 compared to those with lower CSE (Table 5). However, when we include these potential mediators in our main model, they do not meaningfully alter the estimated association between trust and CSE. This suggests that the link between core self-evaluation and interpersonal trust is not merely a byproduct of favorable life outcomes. Rather, the association between core self-evaluation and interpersonal trust may reflect underlying psychological mechanisms such as perceived social safety, reduced sensitivity to interpersonal threat, or greater openness to reciprocal exchanges.

Table 5: The relationship between trust at age 46 and core self-evaluation: Potential channels

	(1) Has partner	(2) Trust	(3) Has child	(4) Trust	(5) Graduate	(6) Trust	(7) Employed	(8) Trust	(9) Log hourly pay	(10) Trust
Core self-evaluation, 3-item std	0.039*** (0.008)	0.141*** (0.021)	0.017* (0.009)	0.143*** (0.021)	0.034*** (0.008)	0.138*** (0.021)	0.023*** (0.007)	0.141*** (0.021)	0.048*** (0.012)	0.135*** (0.025)
Has cohabiting partner, age 42		0.099* (0.049)								
Has child, age 42				0.070 (0.046)						
Graduate, age 42						0.193*** (0.045)				
Employed at age 42								0.119 (0.063)		
Log hourly pay, age 42										0.080 (0.046)
Observations	2895	2427	2895	2427	2895	2427	2886	2422	2047	1754

Notes: Source: BCS70 (CSL, 2023). Control variables: region at birth, parental SES, maternal qualification, ethnicity, cognitive skills at ages 5–16. Robust standard errors in parentheses. *p<0.05 **p<0.01 ***p<0.001

Turning our continuous CSE measure into terciles reveals that the "penalty" for being in the lowest tercile is larger than the "reward" for being in the highest tercile, relative to the middle group (Table 6, column 1). Interestingly, the estimated association between trust and CSE is strongest in the middle tercile (column 3), while it is small and statistically insignificant in both the lowest and highest terciles. This suggests that individuals with extreme CSE scores are not driving our results. One interpretation is that very low CSE may co-occur with other forms of disadvantage that overwhelm its predictive role (Orth et al., 2008; Trzesniewski et al., 2006), while very high CSE might be linked to traits such as narcissism or overconfidence that do not necessarily foster trust (Baumeister et al., 2003; Judge et al., 2006).

Table 6: The relationship between trust at age 46 and core self-evaluation: Non-linearities in the CSE score (3-item measure)

	(1) Categorical CSE	(2) Lowest tercile CSE	(3) Middle tercile CSE	(4) Top tercile CSE
CSE, lowest tercile	-0.234*** (0.048)			
CSE, top tercile	0.091* (0.045)			
Core self-evaluation, 3-item std		0.042 (0.056)	0.218 (0.131)	0.008 (0.081)
Observations	2559	833	860	866

Notes: Source: BCS70 (CSL, 2023). Control variables: region at birth, parental SES, maternal qualification, ethnicity, cognitive skills at ages 5–16. Robust standard errors in parentheses. *p<0.05 **p<0.01 ***p<0.001

Lastly, we examine the role of adolescent mental health in the relationship between trust and CSE (Table 7). Controlling for a measure of depressive symptoms at age 16 does not reduce the magnitude of the estimated coefficients (column 1), suggesting that the relationship between trust and CSE is not driven by adolescent mental health issues. When we split the sample into individuals with high versus low levels of depressive symptoms, the average relationship between trust and CSE remains very similar (columns 2 and 4). However, examining the individual elements of CSE reveals that emotional stability is more predictive of trust among those with high depressive symptoms, while locus of control matters more among those with low depressive symptoms.

This suggests that for adolescents with relatively good mental health, a sense of control over life events (locus of control) may empower them to develop trust in others, possibly because they feel a greater sense of agency in navigating social relationships. In contrast, for those experiencing depressive symptoms, emotional stability appears to be more strongly associated with trust—perhaps because the ability to regulate emotional fluctuations is essential for maintaining positive expectations about others' intentions.

This interpretation is in line with findings by Goodman et al. (2011a) and Rotenberg (2010), who show that depression is associated with difficulties in forming and maintaining interpersonal trust. It may be the case that only adolescents with depressive symptoms who are relatively resilient—i.e., those who retain emotional stability—can

still develop trust in others. In this sense, emotional stability may serve as a protective factor in the presence of psychological vulnerability, allowing core self-evaluation to remain linked to trust even under adverse emotional conditions.

Table 7: The relationship between trust at age 46 and core self-evaluation: Results for those with low versus high levels of depressive symptoms at age 16

	(1) Total sample	(2) High DS Model 1	(3) High DS Model 2	(4) Low DS Model 1	(5) Low DS Model 2
Core self-evaluation, 3-item std	0.155***	0.120***		0.154***	
	(0.025)	(0.030)		(0.034)	
Lack of depression symptoms, std	-0.038				
	(0.025)				
Self-esteem, std			0.044		0.012
			(0.033)		(0.033)
Emotional stability, std			0.075*		0.045
			(0.033)		(0.036)
Locus of control, std			0.032		0.167***
			(0.037)		(0.041)
Self-assessed ability, std			0.031		0.031
			(0.034)		(0.033)
Observations	2559	1288	1288	1271	1271

Notes: Source: BCS70 (CSL, 2023). Control variables: region at birth, parental SES, maternal qualification, ethnicity, cognitive skills at ages 5–16. Robust standard errors in parentheses. *p<0.05 **p<0.01 ***p<0.001. "High DS" refers to those with above-median level of depressive symptoms while "Low DS" refers to those with below-median level of depressive symptoms at age 16. Depressive symptoms are listed in Table A4 in Online Appendix A.

Taken together, these analyses demonstrate that the relationship between CSE and trust is remarkably consistent across key subgroups and is not easily explained by later life outcomes or extreme values. The predictive strength of CSE holds even after accounting for mental health and is particularly stable in the middle range of CSE, suggesting that trust is most strongly rooted in moderate, balanced self-perceptions.

7   Conclusion and discussion

Our study provides robust evidence that core self-evaluation measured in adolescence is a strong and consistent predictor of interpersonal trust in adulthood. Drawing on rich, nationally representative longitudinal data from the 1970 British Cohort Study, we find that individuals with higher adolescent CSE (capturing self-esteem, emotional stability, and internal locus of control) report higher levels of generalized trust up to 30 years later. This relationship holds across four waves of trust measurement and remains robust after controlling for a wide array of background characteristics, including cognitive skills, parental socioeconomic status, and educational attainment. Importantly, the estimated association between CSE and trust is not only statistically significant but also substantial in magnitude: the estimated coefficients are comparable to those on cognitive skills, a well-established predictor of trust. This highlights that in the domain of social capital, psychological traits related to self-worth and perceived control are just as

important as cognitive abilities. While each CSE component is individually associated with trust, locus of control and emotional stability emerge as the most robust predictors in joint models. Overall, our findings emphasize that how individuals view themselves in adolescence has long-term implications for how they view and interact with others in adulthood.

By integrating psychological theory with rich longitudinal data, this study contributes novel evidence that CSE, as early as at age 16, exerts a lasting association with interpersonal trust. While prior studies have linked personality traits to social capital contemporaneously, we show that even after accounting for cognitive ability, socioeconomic background, and life outcomes, core self-evaluation remains a stable and independent predictor.

As always, some caveats might apply to our results. A potential concern is whether the observed relationship between adolescent CSE and later-life trust might be driven by systematic response biases common in Likert-scale survey data. One such concern is acquiescence bias, the general tendency to agree with items regardless of content. However, this is unlikely to explain our results, as the CSE and trust measures were collected decades apart, in different survey waves, using distinct item formulations, and for many questions, with reversed order of negative and positive answers (Ross and Mirowsky, 1984). Furthermore, if acquiescence bias were driving the association, we would expect stronger correlations between measures taken closer in time (Podsakoff et al., 2003). However, the association between CSE and trust remains remarkably stable across different ages, suggesting that time proximity does not amplify the observed relationships.

Extreme response styles, the tendency to consistently choose the endpoints of a scale, might also be considered a threat (Van Vaerenbergh and Thomas, 2013). Yet this would imply a general inflation of correlations across all self-reported traits. In contrast, we find that the predictive power of individual CSE components varies meaningfully across subgroups. For example, emotional stability predicts trust primarily for those with depressive symptoms, while locus of control is more relevant for those without. These differentiated patterns argue against a uniform response style driving the results. Furthermore, we find that the association between trust and CSE is the largest in the middle tercile of the CSE score. If this association were driven by extreme answers, we would expect higher associations in the lowest and highest terciles, not in the middle.

As for positivity bias, the tendency to endorse positive statements about oneself or life (Podsakoff et al., 2003), we note that trust in others is conceptually distinct from self-regard. While both may involve optimism, our findings do not suggest a general positive-responding pattern. Instead, the associations between CSE and trust are trait-specific, age-persistent, and robust across various model specifications.

Finally, social desirability bias, the tendency to respond in a manner perceived as favorable by others, could potentially influence both CSE and trust responses. However, if social desirability were the driving factor, we would expect a consistently strong correlation across all elements of CSE at all ages, which is not the case. Furthermore,

social desirability bias tends to be higher among women (Dalton and Ortegren, 2011), thus should lead to a higher association between CSE and trust among women compared to men. However, we do not find a heterogeneity by gender. The trust and CSE measures of BCS70 are collected via self-administered questionnaires, which might reduce potential social desirability bias. Taken together, these arguments suggest that our findings reflect genuine psychological and behavioral associations rather than artefacts of Likert-scale response biases.

We briefly turn to the policy implications of our study. Adolescent core self-evaluation emerges from our findings as a foundational psychological trait with long-term consequences for interpersonal trust, a key prosocial attitude. These insights point to the potential value of early interventions that foster positive self-concepts and emotional resilience. Evidence from school-based social-emotional learning (SEL) programs, such as those reviewed by Durlak et al. (2011), shows that enhancing self-awareness, emotional regulation, and self-efficacy not only improves mental health and academic outcomes but also encourages prosocial behavior. Targeted interventions aimed at strengthening locus of control (Yeager and Walton, 2011) and self-esteem (Orth and Robins, 2014) have been shown to produce lasting personality changes, particularly when delivered during adolescence, a sensitive period for identity formation. Given the importance of trust for civic engagement, economic participation, and social cohesion (Putnam, 2000; Algan and Cahuc, 2010), programs that help adolescents develop healthier core self-evaluations may generate long-term social returns by investing in the psychological foundations of trust.

References

Alesina, A. and La Ferrara, E. (2002). Who trusts others? *Journal of public economics*, 85(2):207–234.

Algan, Y. and Cahuc, P. (2010). Inherited trust and growth. *American Economic Review*, 100(5):2060–2092.

Almlund, M., Duckworth, A. L., Heckman, J., and Kautz, T. (2011). Personality psychology and economics. In *Handbook of the Economics of Education*, volume 4, pages 1–181. Elsevier.

Anthony, D. B., Wood, J. V., and Holmes, J. G. (2007). Testing sociometer theory: Self-esteem and the importance of acceptance for social decision-making. *Journal of Experimental Social Psychology*, 43(3):425–432.

Arens, A. K., Frenzel, A. C., and Goetz, T. (2022). Self-concept and self-efficacy in math: Longitudinal interrelations and reciprocal linkages with achievement. *The Journal of Experimental Education*, 90(3):615–633.

Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. *Psychological review*, 84(2):191.

Barefoot, J. C., Maynard, K. E., Beckham, J. C., Brummett, B. H., Hooker, K., and Siegler, I. C. (1998). Trust, health, and longevity. *Journal of behavioral medicine*, 21:517–526.

Baumeister, R. F., Campbell, J. D., Krueger, J. I., and Vohs, K. D. (2003). Does high self-esteem cause better performance, interpersonal success, happiness, or healthier lifestyles? *Psychological science in the public interest*, 4(1):1–44.

Baumeister, R. F., Tice, D. M., and Hutton, D. G. (1989). Self-presentational motivations and personality differences in self-esteem. *Journal of personality*, 57(3):547–579.

Becker, A., Deckers, T., Dohmen, T., Falk, A., and Kosse, F. (2012). The relationship between economic preferences and psychological personality measures. *Annu. Rev. Econ.*, 4(1):453–478.

Ben-Ner, A. and Halldorsson, F. (2010). Trusting and trustworthiness: What are they, how to measure them, and what affects them. *Journal of Economic Psychology*, 31(1):64–79.

Berg, J., Dickhaut, J., and McCabe, K. (1995). Trust, reciprocity, and social history. *Games and economic behavior*, 10(1):122–142.

Betthäuser, B. A., Bourne, M., and Bukodi, E. (2020). Understanding the mobility chances of children from working-class backgrounds in britain: How important are cognitive ability and locus of control? *The British Journal of Sociology*, 71(2):349–365.

Bleidorn, W., Klimstra, T. A., Denissen, J. J., Rentfrow, P. J., Potter, J., and Gosling, S. D. (2013). Personality maturation around the world: A cross-cultural examination of social-investment theory. *Psychological science*, 24(12):2530–2540.

Bong, M. and Skaalvik, E. M. (2003). Academic self-concept and self-efficacy: How different are they really? *Educational psychology review*, 15:1–40.

Borghuis, J., Denissen, J. J., Oberski, D., Sijtsma, K., Meeus, W. H., Branje, S., Koot, H. M., and Bleidorn, W. (2017). Big five personality stability, change, and codevelopment across adolescence and early adulthood. *Journal of Personality and Social Psychology*, 113(4):641.

Bucciol, A. and Trucchi, S. (2021). Locus of control and saving: The role of saving motives. *Journal of Economic Psychology*, 86:102413.

Buchan, N. R., Croson, R. T., and Solnick, S. (2008). Trust and gender: An examination of behavior and beliefs in the investment game. *Journal of Economic Behavior & Organization*, 68(3-4):466–476.

Buunk, A. P. and Gibbons, F. X. (2007). Social comparison: The end of a theory and the emergence of a field. *Organizational behavior and human decision processes*, 102(1):3–21.

Cameron, J. J. and Granger, S. (2019). Does self-esteem have an interpersonal imprint beyond self-reports? a meta-analysis of self-esteem and objective interpersonal indicators. *Personality and Social Psychology Review*, 23(1):73–102.

Cameron, J. J., Stinson, D. A., Gaetz, R., and Balchen, S. (2010). Acceptance is in the eye of the beholder: self-esteem and motivated perceptions of acceptance from the opposite sex. *Journal of personality and social psychology*, 99(3):513.

Coleman, J. S. (1988). Social capital in the creation of human capital. *American journal of sociology*, 94:S95–S120.

Creed, P. A., Lehmann, K., and Hood, M. (2009). The relationship between core self-evaluations, employment commitment and well-being in the unemployed. *Personality and Individual Differences*, 47(4):310–315.

Croson, R. and Gneezy, U. (2009). Gender differences in preferences. *Journal of Economic literature*, 47(2):448–474.

CSL (2023). 1970 British Cohort Study [data collection]. UK Data Service. SN: 2000001.

Cummings, E. M. and Davies, P. T. (1994). Maternal depression and child development. *Journal of child psychology and psychiatry*, 35(1):73–112.

Dalton, D. and Ortegren, M. (2011). Gender Differences in Ethics Research: The Importance of Controlling for the Social Desirability Response Bias. *Journal of Business Ethics*, 103:73–93.

Davies, J. and Brember, I. (1999). Reading and mathematics attainments and self-esteem in years 2 and 6-an eight-year cross-sectional study. *Educational Studies*, 25(2):145–157.

Dohmen, T., Falk, A., Huffman, D., and Sunde, U. (2008). Representative trust and reciprocity: Prevalence and determinants. *Economic Inquiry*, 46(1):84–90.

Dohmen, T., Falk, A., Huffman, D., and Sunde, U. (2012). The intergenerational transmission of risk and trust attitudes. *The Review of Economic Studies*, 79(2):645–677.

Dolan, P., Peasgood, T., and White, M. (2008). Do we really know what makes us happy? a review of the economic literature on the factors associated with subjective well-being. *Journal of Economic Psychology*, 29(1):94–122.

Drago, F. (2011). Self-esteem and earnings. *Journal of Economic Psychology*, 32(3):480–488.

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., and Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child development*, 82(1):405–432.

Edelen, M. O. and Reeve, B. B. (2007). Applying Item Response Theory (IRT) Modeling to Questionnaire Development, Evaluation, and Refinement. *Quality of Life Research*, 16:5–18. Publisher: Springer.

Elkins, R. K., Kassenboehmer, S. C., and Schurer, S. (2017). The stability of personality traits in adolescence and young adulthood. *Journal of Economic Psychology*, 60:37–52.

Ermisch, J., Gambetta, D., Laurie, H., Siedler, T., and Noah Uhrig, S. (2009). Measuring people's trust. *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, 172(4):749–769.

Falk, A., Becker, A., Dohmen, T., Enke, B., Huffman, D., and Sunde, U. (2018). Global evidence on economic preferences. *The Quarterly Journal of Economics*, 133(4):1645–1692.

Fanghella, V., Faure, C., Guetlein, M.-C., and Schleich, J. (2023). Locus of control and other-regarding behavior: Experimental evidence from a large heterogeneous sample. *Journal of Economic Psychology*, 95:102605.

Ferla, J., Valcke, M., and Cai, Y. (2009). Academic self-efficacy and academic self-concept: Reconsidering structural relationships. *Learning and individual differences*, 19(4):499–505.

Gammage, P. (1975). *Socialization, schooling and locus of control, Bristol University.* PhD thesis, PhD Thesis.

Gammage, P. (1982). *Children and schooling.* Routledge.

Gang, H., Anderson, M. H., and Summers, J. (2020). Sex differences in core self-evaluation: a meta-analytic review. In *Academy of Management Proceedings*, volume 2020, page 17871. Academy of Management Briarcliff Manor, NY 10510.

Gardner, D. G. and Pierce, J. L. (2010). The core self-evaluation scale: Further construct validation evidence. *Educational and Psychological Measurement*, 70(2):291–304.

Gaucher, D., Wood, J. V., Stinson, D. A., Forest, A. L., Holmes, J. G., and Logel, C. (2012). Perceived regard explains self-esteem differences in expressivity. *Personality and Social Psychology Bulletin*, 38(9):1144–1156.

Gecas, V. (1989). The social psychology of self-efficacy. *Annual review of sociology*, 15(1):291–316.

Gerber, J. P., Wheeler, L., and Suls, J. (2018). A social comparison theory meta-analysis 60+ years on. *Psychological bulletin*, 144(2):177.

Glaeser, E. L., Laibson, D. I., Scheinkman, J. A., and Soutter, C. L. (2000). Measuring trust. *The quarterly journal of economics*, 115(3):811–846.

Goodman, A., Joyce, R., and Smith, J. P. (2011a). The long shadow cast by childhood physical and mental problems on adult life. *Proceedings of the National Academy of Sciences*, 108(15):6032–6037.

Goodman, S. H., Rouse, M. H., Connell, A. M., Broth, M. R., Hall, C. M., and Heyward, D. (2011b). Maternal depression and child psychopathology: A meta-analytic review. *Clinical child and family psychology review*, 14:1–27.

Gopinath, B., Radhakrishnan, K., Sarma, P. S., Jayachandran, D., and Alexander, A. (2000). A questionnaire survey about doctor–patient communication, compliance and locus of control among south indian people with epilepsy. *Epilepsy Research*, 39(1):73–82.

Gunthert, K. C., Cohen, L. H., and Armeli, S. (1999). The role of neuroticism in daily stress and coping. *Journal of personality and social psychology*, 77(5):1087.

Hainmueller, J. (2012). Entropy balancing for causal effects: A multivariate reweighting method to produce balanced samples in observational studies. *Political Analysis*, 20(1):25–46.

Halpern, D. (2001). Moral values, social trust and inequality: can values explain crime? *British Journal of criminology*, 41(2):236–251.

Hamsher, J. H., Geller, J. D., and Rotter, J. B. (1968). Interpersonal trust, internal-external control, and the warren commission report. *Journal of Personality and Social Psychology*, 9(3):210.

Harris, M. A. and Orth, U. (2020). The link between self-esteem and social relationships: A meta-analysis of longitudinal studies. *Journal of personality and social psychology*, 119(6):1459.

Hart, J. (1985). Lawseq: its relation to other measures of self-esteem and academic ability. *British Journal of Educational Psychology*, 55(2):167–169.

He, X. (2022). Relationship between self-esteem, interpersonal trust, and social anxiety of college students. *Occupational Therapy International*, 2022.

Helliwell, J. F. and Putnam, R. D. (1999). Education and social capital.

Helliwell, J. F. and Putnam, R. D. (2004). The social context of well–being. *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences*, 359(1449):1435–1446.

Huang, C. (2012). Discriminant and incremental validity of self-concept and academic self-efficacy: A meta-analysis. *Educational Psychology*, 32(6):777–805.

Huang, J., Van den Brink, H. M., and Groot, W. (2009). A meta-analysis of the effect of education on social capital. *Economics of education review*, 28(4):454–464.

28

Jansen, M., Scherer, R., and Schroeders, U. (2015). Students' self-concept and self-efficacy in the sciences: Differential relations to antecedents and educational outcomes. *Contemporary Educational Psychology*, 41:13–24.

Johnson, E. C., Kristof-Brown, A. L., Van Vianen, A. E., De Pater, I. E., and Klein, M. R. (2003). Expatriate social ties: Personality antecedents and consequences for adjustment. *International Journal of Selection and Assessment*, 11(4):277–288.

Johnson, R. D., Marakas, G. M., and Palmer, J. W. (2006). Differential social attributions toward computing technology: An empirical investigation. *International Journal of Human-Computer Studies*, 64(5):446–460.

Johnson, R. E., Rosen, C. C., and Levy, P. E. (2008). Getting to the core of core self-evaluation: a review and recommendations. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, 29(3):391–413.

Judge, T. A. (1997). The dispositional causes of job satisfaction: A core evaluations approach. *Research in organizational behavior*, 19:151–188.

Judge, T. A. (2009). Core self-evaluations and work success. *Current directions in psychological science*, 18(1):58–62.

Judge, T. A. and Bono, J. E. (2001). Relationship of core self-evaluations traits—self-esteem, generalized self-efficacy, locus of control, and emotional stability—with job satisfaction and job performance: A meta-analysis. *Journal of applied Psychology*, 86(1):80.

Judge, T. A., Bono, J. E., Erez, A., and Locke, E. A. (2005). Core self-evaluations and job and life satisfaction: the role of self-concordance and goal attainment. *Journal of applied psychology*, 90(2):257.

Judge, T. A., Erez, A., Bono, J. E., and Thoresen, C. J. (2002). Are measures of self-esteem, neuroticism, locus of control, and generalized self-efficacy indicators of a common core construct? *Journal of personality and social psychology*, 83(3):693.

Judge, T. A., Heller, D., and Klinger, R. (2008). The dispositional sources of job satisfaction: A comparative test. *Applied Psychology*, 57(3):361–372.

Judge, T. A. and Hurst, C. (2007). Capitalizing on one's advantages: role of core self-evaluations. *Journal of applied Psychology*, 92(5):1212.

Judge, T. A., LePine, J. A., and Rich, B. L. (2006). Loving yourself abundantly: relationship of the narcissistic personality to self-and other perceptions of workplace deviance, leadership, and task and contextual performance. *Journal of applied psychology*, 91(4):762.

Judge, T. A., Locke, E. A., Durham, C. C., and Kluger, A. N. (1998). Dispositional effects on job and life satisfaction: the role of core evaluations. *Journal of applied psychology*, 83(1):17.

Kamer, B. and Annen, H. (2010). The role of core self-evaluations in predicting performance appraisal reactions. *Swiss Journal of Psychology*.

Kawachi, I., Kennedy, B. P., and Glass, R. (1999). Social capital and self-rated health: a contextual analysis. *American journal of public health*, 89(8):1187–1193.

Kim, Y.-I., VanderWeele, T. J., and Johnson, B. R. (2025). Childhood predictors of perceptions of social trust across 22 countries in the global flourishing study. *Scientific Reports*, 15(1):14358.

Klein, K. J., Lim, B.-C., Saltz, J. L., and Mayer, D. M. (2004). How do they get there? an examination of the antecedents of centrality in team networks. *Academy of Management Journal*, 47(6):952–963.

Kling, K. C., Hyde, J. S., Showers, C. J., and Buswell, B. N. (1999). Gender differences in self-esteem: a meta-analysis. *Psychological bulletin*, 125(4):470.

Knack, S. and Keefer, P. (1997). Does social capital have an economic payoff? a cross-country investigation. *The Quarterly journal of economics*, 112(4):1251–1288.

Knapp, M., King, D., Healey, A., and Thomas, C. (2011). Economic outcomes in adulthood and their associations with antisocial conduct, attention deficit and anxiety problems in childhood. *Journal of mental health policy and economics*, 14(3):137–147.

Lawrence, D. (1981). The development of a self-esteem questionnaire. *British Journal of Educational Psychology*, 51(2):245–251.

Leary, M. R. (2005). Sociometer theory and the pursuit of relational value: Getting to the root of self-esteem. *European review of social psychology*, 16(1):75–111.

Leary, M. R. and Baumeister, R. F. (2000). The nature and function of self-esteem: Sociometer theory. In *Advances in experimental social psychology*, volume 32, pages 1–62. Elsevier.

Li, Y., Pickles, A., and Savage, M. (2005). Social capital and social trust in britain. *European sociological review*, 21(2):109–123.

Liao, S., Mo, L., and Wang, L. (2025). The impact of childhood trauma on meaning in life among middle school students: the chain-mediating roles of social support and core self-evaluations. *BMC psychology*, 13(1):419.

Marsh, H. W. (1990). The structure of academic self-concept: The marsh/shavelson model. *Journal of Educational psychology*, 82(4):623.

Marsh, H. W., Pekrun, R., Parker, P. D., Murayama, K., Guo, J., Dicke, T., and Arens, A. K. (2019). The murky distinction between self-concept and self-efficacy: Beware of lurking jingle-jangle fallacies. *Journal of educational psychology*, 111(2):331.

Mayer, R. C., Davis, J. H., and Schoorman, F. D. (1995). An integrative model of organizational trust. *Academy of Management Review*, 20(3):709–734.

McCarthy, M. H., Wood, J. V., and Holmes, J. G. (2017). Dispositional pathways to trust: Self-esteem and agreeableness interact to predict trust and negative emotional disclosure. *Journal of personality and social psychology*, 113(1):95.

McCrae, R. R. and Costa Jr, P. T. (1994). The stability of personality: Observations and evaluations. *Current directions in psychological science*, 3(6):173–175.

Müller, J. and Schwieren, C. (2020). Big five personality factors in the trust game. *Journal of Business Economics*, 90(1):37–55.

Murasko, J. E. (2007). A lifecourse study on education and health: The relationship between childhood psychosocial resources and outcomes in adolescence and young adulthood. *Social Science Research*, 36(4):1348–1370.

Murray, S. L., Holmes, J. G., and Collins, N. L. (2006). Optimizing assurance: the risk regulation system in relationships. *Psychological bulletin*, 132(5):641.

Nie, N. H., Junn, J., and Stehlik-Barry, K. (1996). *Education and democratic citizenship in America.* University of Chicago Press.

Nowicki, S. and Strickland, B. R. (1973). A locus of control scale for children. *Journal of consulting and clinical psychology*, 40(1):148.

Orth, U. and Robins, R. W. (2014). The development of self-esteem. *Current directions in psychological science*, 23(5):381–387.

Orth, U., Robins, R. W., and Roberts, B. W. (2008). Low self-esteem prospectively predicts depression in adolescence and young adulthood. *Journal of personality and social psychology*, 95(3):695.

Orth, U., Robins, R. W., Trzesniewski, K. H., Maes, J., and Schmitt, M. (2009). Low self-esteem is a risk factor for depressive symptoms from young adulthood to old age. *Journal of abnormal psychology*, 118(3):472.

Oshio, A., Taku, K., Hirano, M., and Saeed, G. (2018). Resilience and big five personality traits: A meta-analysis. *Personality and individual differences*, 127:54–60.

Packer, E. (1985a). *The art of introspection.* Jefferson School of Philosophy, Economics, and Psychology.

Packer, E. (1985b). Understanding the subconscious. In *Objectivist Forum*, volume 6, page 1.

Park, L. E. and Maner, J. K. (2009). Does self-threat promote social connection? the role of self-esteem and contingencies of self-worth. *Journal of personality and social psychology*, 96(1):203.

Piccolo, R. F., Judge, T. A., Takahashi, K., Watanabe, N., and Locke, E. A. (2005). Core self-evaluations in japan: relative effects on job satisfaction, life satisfaction, and happiness. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, 26(8):965–984.

Plewis, I., Nathan, G., Calderwood, L., and Hawkes, D. (2004). National child development study and 1970 british cohort study technical report: Changes in the ncds and bcs70 populations and samples over time.

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., and Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5):879–903. Place: US Publisher: American Psychological Association.

Putnam, R. (1993). The prosperous community: Social capital and public life. *The american*, 4.

Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community.* Simon and schuster.

Rodgers, B., Pickles, A., Power, C., Collishaw, A., and Maughan, B. (1999). Measurement of psychiatric disorder in adults: validity of the malaise inventory in general population samples. *Social Psychiatry and Psychiatric Epidemiology*, 34:333–341.

Rosenberg, M. (1965). *Society and the adolescent self-image.* Princeton university press.

Ross, C. E. and Mirowsky, J. (1984). Socially-Desirable Response and Acquiescence in a Cross-Cultural Survey of Mental Health. *Journal of Health and Social Behavior*, 25(2):189–197. Publisher: [American Sociological Association, Sage Publications, Inc.].

Rotenberg, K. J. (2010). *Interpersonal trust during childhood and adolescence.* Cambridge University Press.

Rothstein, B. and Uslaner, E. M. (2005). All for all: Equality, corruption, and social trust. *World politics*, 58(1):41–72.

Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological monographs: General and applied*, 80(1):1.

Rotter, J. B. (1971). Generalized expectancies for interpersonal trust. *American Psychologist*, 26(5):443–452.

Rutter, M., Tizard, J., and Whitmore, K. (1970). *Education, health and behaviour.* Longmans.

Saari, A. J., Kentala, J., Mattila, K. J., et al. (2015). Weaker self-esteem in adolescence predicts smoking. *BioMed research international*, 2015.

Sapienza, P., Toldra-Simats, A., and Zingales, L. (2013). Understanding trust. *The Economic Journal*, 123(573):1313–1332.

Schoon, I. (2006). *Risk and resilience: Adaptations in changing times.* Cambridge University Press.

Shavelson, R. J., Hubner, J. J., and Stanton, G. C. (1976). Self-concept: Validation of construct interpretations. *Review of educational research*, 46(3):407–441.

Soldz, S. and Vaillant, G. E. (1999). The big five personality traits and the life course: A 45-year longitudinal study. *Journal of research in personality*, 33(2):208–232.

Specht, J., Egloff, B., and Schmukle, S. C. (2011). Stability and change of personality across the life course: the impact of age and major life events on mean-level and rank-order stability of the big five. *Journal of personality and social psychology*, 101(4):862.

Srivastava, A., Locke, E. A., Judge, T. A., and Adams, J. W. (2010). Core self-evaluations as causes of satisfaction: The mediating role of seeking task complexity. *Journal of vocational behavior*, 77(2):255–265.

Stolle, D. (1998). Bowling together, bowling alone: The development of generalized trust in voluntary associations. *Political psychology*, pages 497–525.

Stumpp, T., Muck, P. M., Hülsheger, U. R., Judge, T. A., and Maier, G. W. (2010). Core self-evaluations in germany: Validation of a german measure and its relationships with career success. *Applied Psychology*, 59(4):674–700.

Sturgis, P., Read, S., and Allum, N. (2010). Does intelligence foster generalized trust? an empirical test using the uk birth cohort studies. *Intelligence*, 38(1):45–54.

Sutton, J. M., Mineka, S., Zinbarg, R. E., Craske, M. G., Griffith, J. W., Rose, R. D., Waters, A. M., Nazarian, M., and Mor, N. (2011). The Relationships of Personality and Cognitive Styles with Self-Reported Symptoms of Depression and Anxiety. *Cognitive Therapy and Research*, 35(4):381–393.

Ternouth, A., Collier, D., and Maughan, B. (2009). Childhood emotional problems and self-perceptions predict weight gain in a longitudinal regression model. *BMC medicine*, 7:1–9.

Thompson, B. and Daniel, L. G. (1996). Factor Analytic Evidence for the Construct Validity of Scores: A Historical Overview and Some Guidelines. *Educational and Psychological Measurement*, 56(2):197–208.

Trzesniewski, K. H., Donnellan, M. B., Moffitt, T. E., Robins, R. W., Poulton, R., and Caspi, A. (2006). Low self-esteem during adolescence predicts poor health, criminal

behavior, and limited economic prospects during adulthood. *Developmental psychology*, 42(2):381.

Trzesniewski, K. H., Donnellan, M. B., and Robins, R. W. (2013). Development of self-esteem. In *Self-esteem*, pages 60–79. Psychology Press.

Uslaner, E. M. (2008). Trust as a moral value. *The handbook of social capital*, pages 101–121.

Van Vaerenbergh, Y. and Thomas, T. D. (2013). Response Styles in Survey Research: A Literature Review of Antecedents, Consequences, and Remedies. *International Journal of Public Opinion Research*, 25(2):195–217.

VandenBos, G. R. (2007). *APA dictionary of psychology*. American Psychological Association.

Warren, M. (2018). Trust and democracy. *The Oxford handbook of social and political trust*, pages 75–94.

Yeager, D. S. and Walton, G. M. (2011). Social-psychological interventions in education: They're not magic. *Review of educational research*, 81(2):267–301.