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The Effect of Teenage Employment on Character Skills and Occupational Choice Strategies

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The Effect of Teenage Employment on Character Skills and Occupational Choice Strategies*

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Abstract: A growing body of research suggests that, even after controlling for cognitive abilities, personality predicts economic success in later life. The learning environment at school focuses on knowledge and cognitive skills. The transmission of character skills, however, is not at the center of attention. Leisure activities as informal learning activities outside of school may affect the formation of personality. E.g. working while attending school is seen as a stepping stone toward independence and adulthood and can foster important character skills by providing opportunities to promote responsibility and further character skills. However, the channel of the positive influence has not been identified empirically. I suggest that employment during adolescence affects character skills that are known to have a positive effect on labor market outcomes and educational achievements. Employing a flexible strategy involving propensity score matching combined with regression adjustment, I find beneficial effects on character skills. Working while attending secondary school leads to a higher internal locus of control. In addition to promoting character skills, teenage employment improves knowledge on which skills and talents school students have and also the importance of parents' advices with respect to their future career. These results are robust to several model specifications and varying samples and robust to including family-fixed effects.

Keywords: human capital, teenage employment, non-cognitive skills, time use, treatment effect

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1 Introduction

A growing body of research suggests that, even after controlling for cognitive abilities, personality predicts economic success in later life. As mentioned in Heckman et al. (2006) character skills affect earnings directly due to their influence on productivity as well as indirectly due to their influence on schooling and work experience, even after controlling for cognitive abilities. Lindqvist and Vestmen (2011) document that character skills matter in determining labor market outcomes. Using data from Swedish military enlistment, they find that especially at the low end of the earnings distribution character skills have their strongest influence. The learning environment at school focuses on knowledge and cognitive skills. The development of character skills, however, is not at the center of attention. Leisure activities as informal learning activities outside of school may affect the formation of personality. E.g. working while attending school is seen as a stepping stone toward independence and adulthood (Rauscher et al., 2013). It is assumed that having a job can foster important character skills by providing opportunities to learn new things, to promote responsibility and time management skills.

For the US, the effect of high school employment on educational attainment and later labor market outcomes is well elaborated. Ruhm (1997), Light (2001) and Hotz et al. (2002) use different empirical strategies to take account for the endogeneity of part-time work and apply varying definitions of High School employment. They find positive and meaningful effects on earnings in later life. Using geographic characteristics such as the local unemployment rate and dummies for geographic regions as instruments, Ruhm (1997) finds a positive and significant effect of employment during High School's senior year. For instance, an employment of 20 hours per week increases earnings by about 22% and leads to a 9% higher hourly wage six to nine years later. Light (2001) finds a similar result with a similar identification strategy. However, she uses different ability measures, the family structure and the existence of High School employment programs as instruments for the endogenous work decision. Hotz et al. (2002) confirms partially the positive relationship between student employment and later income. However, they argue that a careful consideration of how one accounts for the dynamic form of self-selection plays a relevant role for the result.

Besides positive effects, the existing literature also confirms a negative relationship between secondary school employment and educational attainment. Marsh (1991) and Marsh and Kleitman (2005) find a negative correlation between hours worked per week in sophomore year and the probability of leaving school without graduat-

ing. Nonetheless, they also find a positive effect on employment probability within the first two years after High School. Kalenkoski and Pabilonia (2012) observe how an employment during adolescence affects the allocation of the remaining time. They find a reduction in homework time on school and non-school days as well as in screen time but only on non-school days. Oettinger (1999) confirms a crowding out effect by distinguishing between employment during school weeks and during summer vacation. While he does not find any significant effects of summer employment, working during school weeks has a significant negative effect on grade point average (gpa) and therefore educational attainment. This is in line with findings of DeSimone (2006). He identifies that a positive effect of student employment on gpa becomes significantly negative if employment during school weeks exceeds 15 hours per week.

The relationship between teenage employment and educational attainment and labor market outcomes seems to be complex. Not only the activity of working but also the type of job and its intensity – the overall number of hours worked per week or whether working during school weeks or during the holidays – affects the relationship. Some job environments and tasks seem to be more beneficial than others and working time competes with time investing in other productive activities. I conclude carefully that moderate employment may enhance human capital, e.g. the sense of responsibility, time management and organizational skills as well as promoting maturity. Greenberger and Steinberg (1986) discuss the importance of meaningful jobs for teenagers in more detail. Further, employment during adolescence may facilitate the transition from secondary education to vocational training due to experiences teenagers gain, e.g. the knowledge of how the world of work works, and it may be signalize future employers the preference to work and the willingness to reduce the engagement of other leisure activities. On the other side, employment may lead to reduced educational attainment and labor market performance if its performance exceeds a critical temporal threshold. This is in line with the allocation of time model by Becker (1965) and the zero-sum model by Coleman (1961).

While the reason of negative effects of early employment on later economic success is well researched (see Oettinger, 1999; Warren, 2002; DeSimone, 2006) the channel of the positive influence has not been identified empirically. In this paper, I shed more light on this topic by taking another strand of literature into account that deals with character skills and their effect on economic success. I suggest that employment during adolescence affects character skills that are known to have a positive effect on labor market outcomes and educational achievements. A further contribution is an accurate descriptive elaboration of having a part-time job as school student. While

for the US high school employment is well investigated, evidence for Germany is scarce.

The legal situation to what extent school-aged children are allowed to work is governed by the German Youth Employment Protection Act (Jugendarbeitsschutzgesetz, JArbSchG). In general, it is forbidden by law to employ school students younger than 13 years of age. From age 13 onwards, however, part-time employment is allowed subject to some restrictions. 13- and 14-year-old minors may work up to two hours on school days but not during school hours and not after 6 pm. Further, only physically modest jobs such as baby-sitting, tutoring, and brochure delivery are allowed. At age 15 and older working time on school days is extended to 8 pm. Summer jobs as further employment opportunities are henceforth allowed if they do not exceed 20 full-time employment days per year. After reaching age 18 school students do not face any restrictions concerning working on school days. During school vacations, however, working is still restricted for them to 50 full-time employment days per year. Depending on the occupation, many exceptions from these general legal rules exist.

I make use of two different data sets, the German Socio-Economic Panel (SOEP) provided by the DIW and the Time Budget Survey (TBS) provided by the Federal Statistical Office. SOEP is an annual household panel survey covering more than 11,000 households that is representative for Germany. It includes detailed information on family background, involvement in different leisure activities, school performance, future education and career plans as well as various measures of character skills. The TBS covers the years 1991/92 and 2001/02 and collects information on time use measured in five and ten minute intervals, respectively. In addition, it contains information on family background, school attendance, the type of part-time job and working hours per week.

To estimate the effect of working while attending secondary school on character skills I apply a flexible strategy involving propensity score matching combined with a regression adjustment (Imbens, 2004). I examine the matching quality with the Smith/Todd (2005) test that checks whether the treatment provides any information on the control variables used to estimate the propensity score and additional Hotelling and *t*-tests. Each balancing test confirms excellent balancing of the covariates.

My main findings are as follows. First, I find a positive selection into teenage employment. Teenagers who have a job during school rather have higher-educated parents and rather live in financially well-endowed households. Their parents were

less non-employed and rather self-employed in the past. Teenagers with a migration background and who live in regions with high unemployment rates are less likely to be employed while attending secondary school. Further, female adolescents tend to start working because the work interested them rather than males. If working, male teenagers tend to have delivery jobs while females vary stronger in the type of job they have. Delivery jobs, service jobs like waitressing, care jobs like baby-sitting, and tutoring are popular jobs of female school students. In addition, teenagers who work differ significantly in their time use from non-employed teenagers. On average, they sleep less, they spend less time with media use, and they invest more time with academic learning, especially on weekends. If I concentrate on time use of employed teenagers, I find that work reduces time spent with peer activities, academic learning, relaxing, and media use. Further, I find beneficial effects on character skills. Working while attending secondary school leads to a higher internal locus of control that is positively related to self-esteem. In addition to promoting character skills, teenage employment improves knowledge on which skills and talents school students have and also the importance of parents' advices with respect to their future career. Especially for female teenagers this pattern is stronger. These results are robust across several model specifications and varying samples and robust to including family-fixed effects.

The remainder of this paper is organized as follows. Section 2 describes the data and the analysis sample. Section 3 lays out the econometric approach. Section 4 shows descriptive statistics and it gives a detailed account of the propensity score model. It also presents results of balancing tests as well as the empirical results. Section 5 concludes.

2 Data and Analysis Sample

To analyze the effect of working part-time while attending secondary school on character skills and occupational choice strategies, I make use of two data sets. The first data set I use is the German Socio-Economic Panel Study (SOEP) that is a representative annual household panel covering more than 11,000 households in Germany.¹ In addition to the standard household and person questionnaire, the SOEP conducts since 2000 a specific youth biography questionnaire to all youths turning 17 in the corresponding year.² It includes detailed information on family background

¹I use the data distribution 1984-2012, <http://dx.doi.org/10.5684/soep.v29>. See Wagner et al. (2007), Wagner et al. (2008) and Schupp (2009) for further information.

²In 2001, 18- and 19-year-old first time respondents were also considered in the questionnaire.

and childhood, involvement in different leisure activities, school performance, future education and career plans as well as attitudes about different topics. Further, I use the annual person questionnaire to add information on their parents' employment and earnings history. My final sample is restricted to youths who attend a secondary school in the year in which they complete the questionnaire.³

Rauscher et al. (2013) study how beneficial a job for the human capital accumulation of adolescents can be and find that not only the act of working itself but also the quality of work matters. Thus, if jobs for teenagers differ in their characteristics such as skill variety and degree of autonomy, the effect of secondary school employment on character skills is likely to depend on the type of job. Despite the plenty of valuable information, the SOEP lacks information on in-school work experience. It provides neither information on the type of job adolescents hold nor, as a consequence thereof, information on its characteristics. To control at least indirectly for heterogeneous effects on adolescents' character skills, I make use of the results in Kooreman (2009). Using a sample of Dutch school students, he finds that the selection in a particular part-time job depends strongly on students' gender. Despite equal education, female students tend to work in lower-paying occupations such as babysitting or working in a supermarket while male students choose better-paid jobs such as delivering newspapers. Assuming that occupation characteristics within gender are more homogeneous than between gender, I perform my analysis for male and female school students separately. Table 1 shows the sample size and the number of teenagers who hold a part-time job. Further, the SOEP provides information on the age they started to work and why they decided to work, see table 2. In both samples about 38.5% of teenagers have had at least one job during full-time schooling. On average, male teenagers were about two months older than female teenagers when they started their first part-time job. Most teenagers started to work to improve their pocket money. 84.7% (80.3%) of male (female) adolescents who have ever had a job did their first job to become at least partially financially independent from their parents. Besides financial motivation, interest in a job also plays a crucial role, especially for women. 15.7% (11.8%) of female (male) teenagers mention interest as main reason. The difference³ of 3.9%-points is significant at the 10% significance level.

— Insert table 1 here. —

— Insert table 2 here. —

³Secondary school includes Hauptschule, Realschule, Gymnasium, and Gesamtschule.

The effect of working while attending school full time on skills and attitudes could also be driven by the employment-induced reduction or increase in time spent with other for the development of skills relevant leisure activities. In this case, it would be useful to know how working after school affects the time spent with other leisure activities. Since SOEP offers only a crude measure of the intensity of some leisure activities, I use the Time Budget Survey (TBS) as second data set that provides detailed information on daily time allocation.⁴ The TBS is a representative survey provided by the Federal Statistical Office conducted in 1991/92 and 2001/02.⁵ In addition to socio-economic variables, it collects information on daily time use on three days, two weekdays and one weekend day, of all household members aged twelve and older.⁶ For the analysis I concentrate on wave 2001/02. A further advantage of the TBS is, in contrast to SOEP, the presence of information on work intensity measured by the number of hours worked per week and the type of job.⁷ For the analysis the TBS sample is restricted to teenagers aged between 13 and 18 who attend a secondary school in the year in which the survey was conducted. Due to different questions, the treatment varies between both data sets. In the SOEP I define all adolescents who have had a part-time job during secondary school as treated. In the TBS all adolescents who have a paid job at the time of the survey are counted as employed.

Tables 3 and 4 show the sample size, the share of employed adolescents and the type of job they have. Overall, 25% of male and 21.4% of female adolescents are employed during full-time schooling. For both males and females, delivery jobs are the most common type of job. Among employed male teenagers 57.5% have such a job while any other category is mentioned by less than 7%. A more heterogeneous picture with respect to the type of job emerges for female adolescents. Although delivery jobs are also the most frequent type of job (21.1%), other jobs such as waitressing (15.6%), babysitting (14.3%), and tutoring (12.2%) are also mentioned frequently. This differential pattern between male and female adolescents strengthens the motivation of a gender-specific analysis. In addition, panel (b) of table 4 shows the number of hours adolescents work per week. While male teenagers work 4.24 hours

⁴The SOEP measures the frequency of other leisure activities by the categories daily, monthly, less often, and seldom.

⁵See https://www.destatis.de/EN/FactsFigures/SocietyState/IncomeConsumptionLivingConditions/TimeUse/Current_Information_ZBE.html

⁶In 1991/92, time use is measured in 5 minute intervals and in 2001/02, in 10 minute intervals. See Ehling et al. (2001) for further information.

⁷Information on the type of job is captured by the StaBuA 1992 Job Classification at the two digit level. For each two digit category I take the most likely job (type), listed on the four digit level, teenagers can do and present it in table 4.

per week on average, females work 4.87 hours per week.

— Insert table 3 here. —

— Insert table 4 here. —

3 Analytic Framework

3.1 Conceptual Background

Cunha et al. (2006) and Cunha et al. (2010) present a multistage model of the evolution of cognitive and character skills of children with focus on parental investments. Their findings suggest that especially for the formation of cognitive skills early investments made by parents matter and that an adverse endowment of cognitive abilities at an early stage of life cannot be easily compensated by later parents' investments. Del Boca et al. (2012) confirm this pattern for mothers' investments. Using the amount of time spent actively with children during childhood and adolescence, they find that during childhood mothers' investments are more important for the formation of children's cognitive abilities than during adolescence. In addition to mothers' investments, they include children's own investments measured by the amount of time spent with activities assumed to be beneficial for the formation of cognitive abilities such as doing homework, reading, and doing arts or sports. While mothers' investments become less relevant with increasing age of children, children's own time investments grow in importance for cognitive skill formation. However, the last pattern can also be driven by character skills. Besides cognitive skills also non-cognitive abilities can be affected by leisure activities and achievement test results used as measures of cognitive abilities do not only capture cognitive but also some character skills (Borghans et al. 2008, 2009).

A growing body of research suggests that, even after controlling for cognitive abilities, character skills predict economic success in later life. Heckman and Rubinstein (2001) and Heckman et al. (2014) show that although High School dropouts who take the GED are smarter than other dropouts and broadly as smart as High School graduates without any college experience, especially males do not experience any wage premium in comparison to dropouts. Therefore, the GED serves as a signal of deficits in character skills that led them drop out of High School leading to adverse labor market outcomes of male GED graduates. However, Cunha et al. (2006,

2010), find that the formation of character skills is more malleable and not entirely concluded by the time children enter adolescence than in comparison to cognitive skills.

The newer neuroscientific research shows that character skills are reflected in the brain’s functional architecture and has therefore also a biological basis. Schmidtke and Heller (2004) document that neuroticism, a measure of emotional instability, is related with increased activity in the right posterior hemisphere. DeYoung et al. (2010) examine the relationship between Big Five personality traits and the volume of different brain regions. While agreeableness varies with the volume of brain regions that process information about the intention and mental states of other individuals, conscientiousness is related to the volume of regions involved in planning and the voluntary control of behavior. As mentioned in Blakemore and Choudhury (2006), adolescence represents a period of synaptic reorganisations and is therefore a period where the brain might be more sensitive to input. Leisure activities, as inputs for the brain development, can then, through this biological channel, affect character skills.

Taking the development of character skills as a cumulative process depending on family inputs and inputs from formal and informal learning activities, I make use of Todd and Wolpin’s (2003) cumulative model specifications.⁸⁹

The estimating equation is given by:

$$Y_{ij} = \beta_0 + \sum_k \beta_k X_{ijk} + \beta_T T_{ij} + \gamma_1 \mu_j^f + \gamma_2 \mu_{ij}^c + \varepsilon_{ij}$$

where Y_{ij} denotes a particular character skill measured at age 17 of adolescent i in family j and T_{ij} denotes a treatment status dummy variable taking on the value one if the adolescent worked while attending secondary school. Thus, β_T is the parameter of interest that captures the treatment effect. X_{ijk} includes other inputs as well as measures of the family and school environment. An issue is that adolescents with particular character skills could select into particular leisure activities. Further, family and school inputs could depend on initial endowment with character skills. In this case, the model would suffer from potential endogeneity. Because character

⁸While the term “formal learning activities” captures all for the development of character skills relevant inputs applied by school, the term “less formal learning activities” is related to all leisure activities that contribute to the development of character skills.

⁹Todd and Wolpin (2003) give a detailed theoretical overview of modeling production functions for cognitive abilities depending on various data limitations.

skills are measured at age 17 for the first time, I control for the initial endowment μ_{ij} as follows. I divide μ_{ij} into a family- and a child-specific part μ_{ij}^f and μ_j^c , respectively. To control for the family-specific part, I include family-fixed effects. To control for the child-specific part, I make use of the self-selection into leisure activities. If adolescents with a certain bundle of characteristics tend to perform particular leisure activities, I can control indirectly for the child-specific part of initial endowment of character skills by including other leisure activities done in childhood as proxies. ε_{ij} is an idiosyncratic error term that is assumed to be identically and independently distributed.

3.2 Econometric Approach

To estimate the effect of working while attending secondary school on a set of behavioral outcomes and occupational choice strategies, I apply the potential outcome approach (Neyman, 1923; Roy, 1951; Rubin, 1974). The treatment effect for each individual i is defined as

$$\Delta_i = Y_i^1 - Y_i^0 ,$$

where Y_i^1 is the potential outcome if individual i is treated and Y_i^0 if not. For each individual i the observed outcome is given by:

$$\begin{aligned} Y_i &= Y_i^1 \cdot T_i + Y_i^0 \cdot (1 - T_i) \\ &= Y_i^0 + T_i \cdot (Y_i^1 - Y_i^0) , \end{aligned}$$

where the expression in parentheses in the second line corresponds to the individual-level treatment effect on outcome. Because either Y_i^0 or Y_i^1 can be observed, an individual-level treatment effect cannot be identified. Therefore, the interest lies in identifying the population average treatment effect on the treated Δ_T ,

$$\Delta_T = E[Y^1 - Y^0 | T = 1] = E[Y^1 | T = 1] - E[Y^0 | T = 1].$$

In experiments in which treatment is randomly assigned and treated and non-treated individuals do not differ systematically in (un-)observed characteristics, $E[Y^0 | T = 1]$, that is the average potential non-treatment outcome of the treated, can be replaced by the average non-treatment outcome of the non-treated $E[Y^0 | T = 0]$ that can be observed. In observational studies, however, the assumption of a random

treatment assignment cannot be maintained. Rosenbaum and Rubin (1983) overcome this problem by relying on the assumption of conditional unconfoundedness also known as the conditional independence assumption (CIA):

$$E[Y^j|\mathbf{X}, T = 1] = E[Y^j|\mathbf{X}, T = 0] = E[Y^j|\mathbf{X}], \quad j \in \{0, 1\}.$$

The idea of this assumption is that after conditioning successfully on the vector $\mathbf{X}$ that affect the treatment assignment and the outcome of interest, the treatment is as good as randomly assigned. The overlap assumption, as a further key assumption, ensures that for each set of values of $\mathbf{X}$ treated and non-treated individuals exist. Using the propensity score, that is the predicted probability of treatment assignment given $\mathbf{X}$, the overlap is defined as

$$0 < \Pr(T = 1|\mathbf{X}) < 1$$

and guarantees that for each treatment assignment probability treated and non-treated individuals can be observed.

The estimation proceeds in two steps. First, I estimate for male and female teenagers propensity scores separately. Then I implement matching on propensity scores and save the resulting matching weights.¹⁰ In a second step, I do least squares regressions where individuals are weighted by the before-calculated matching weights. For Δ_T , for instance, we have the following minimization problem

$$\min_{\{\beta_0, \beta_T, \beta_k, \delta\}} \sum_i^n g_i \left[Y_i - \beta_0 - \beta_T T_i - \sum_k \left\{ \beta_k X_{ik} - \delta_k T_i (X_{ik} - \bar{X}_{kT}) \right\} \right]^2,$$

where $i = 1, 2, \dots, n$ indexes observations, β_T corresponds to the treatment effect of interest, here Δ_T , $\bar{X}_{kT}$ identifies the average of X_k over the treated subsample, and g_i represents the matching weight of individual i .¹¹

The combination of matching and regression is known as doubly robust estimation and has several advantages. First, because outliers get smaller matching weights, this method avoids comparisons based on extrapolations not supported by the data.

¹⁰Potential outcomes are estimated by a local constant and a local linear Gaussian kernel regression. Treatment effects presented in this paper are based on matching weights of the local constant weighted regression due to slightly better balancing test results.

¹¹The analogous procedure is conducted to estimate Δ_U , the average treatment effect on the untreated.

Second, the estimated treatment effects are consistent if at least one of both propensity score and outcome regression model is correctly specified (Robins and Ritov, 1997 and Imbens, 2004). Therefore, the estimated treatment effect is robust to misspecifications of one of both models.

I obtain standard errors and confidence bands for the estimated treatment effects through bootstrapping based on 500 resamples. I resample families to account for serial correlation across siblings. In each resample, I recomputed the propensity score using a draw from the asymptotic distribution of the coefficients in the propensity score model. This allows me to take account of the estimation error in the propensity score.

4 Empirical Results

4.1 Descriptive Statistics

The existing literature suggests a positive selection into early employment. Youths from families with low socio-economic status (SES) face disadvantages in finding suitable jobs while attending full-time schooling. Because of the relationship between ethnicity and SES, the US literature identifies significant ethnicity differences in adolescents' High School employment status. Hirschman and Voloshin (2007) find that black High School students face disadvantages in finding suitable jobs. Either they do not have a job or the job is time-consuming and affects negatively the academic learning time and grades. In addition, they are less likely to perform white-collar work. Instead, black High School students can, if they have a job, rather be found in low-paid blue-collar jobs that offer mostly a lower quality of human capital input compared to white-collar jobs. The authors conclude that social networks, spatial mismatch, and employer preferences may matter for this finding. Hotz et al. (2002) and Kalenkoski and Pabilonia (2012) confirm ethnical differences in student employment.

Table 5 shows a positive selection into teenage employment in the SOEP sample. For both gender, parents of teenagers who have had a job during full-time schooling are on average higher educated. 27.5% of employed male and 28.8% of employed female teenagers have at least one parent with a general qualification for university entrance (Abitur). For teenagers who have never had a job the share is significantly smaller.¹² In addition to their higher education, parents of employed male and female

¹²With the exception of parents' tertiary education – a dummy variable that takes on the value

adolescents earn on average € 2,500 per year more than parents of non-employed teenagers.¹³ Further, parents of employed teenagers, especially of male students, were less likely to be non-employed and rather self-employed.¹⁴ Beside economic factors, parents of employed and non-employed teenagers differ in their personality, too. Especially in variables measuring trust and past trusting behavior I find significantly higher values for parents of school students who have worked.¹⁵ Not only their parents, but also teenagers differ with respect to their characteristics. For both males and females, employed teenagers were more likely to have a teacher's recommendation given at the end of grade four to continue on the academically oriented school track and indeed they are more likely to attend this school track at age 17. Further, they are less likely migrants and more engaged in their leisure time at age 17. For instance, employed teenagers rather play sports on a daily basis and they have been more active in formal extracurricular activities. 46.3% of male and 53.8% of female school students who have had a job have been active as class or student body president or have been involved in the school newspaper. In the sample of non-employed teenagers the fraction of students who have performed such activities is significantly smaller. Besides these rather formal types of additional school activities, adolescents who have worked have been also more active in less formal types of extracurricular activities. 66.6% (75.6%) of male (female) employed adolescents have been involved in school theater or dance groups, and school orchestra or sports groups at school. Again, for non-employed adolescents the fraction is significantly smaller. Further, besides family and individual characteristics, regional conditions can also affect the employment status of teenagers. For both males and females, I find significantly higher unemployment rates in regions in which teenagers who have never worked live.¹⁶ Further, they rather live in East Germany and they grew up rather in cities than in the countryside.

one if at least one parent has a university degree – of male teenagers where no significant difference can be found.

¹³The variable *Parental income* is an average of past annual earnings of father and mother. To measure parents' annual earnings I go back as far as possible, however with ten years as maximum. In the final analysis I include not only the mean but also the standard deviation of annual earnings to control for past income fluctuations.

¹⁴For father's self-employment, however, the pattern is less clear. The parents' employment status variables show the percentage of years parents were self- or non-employed, respectively.

¹⁵Both measures of trust are standardized variables created by a factor analysis using three items for each trust variable. While general trust measures the individual expectation of the trustworthiness of other people, past trusting behavior is an indicator of how intensive one has supported and cooperated with friends. See Glaeser et al. (2000) and Naef and Schupp (2009) for a more detailed discussion of trust measured by surveys and experiments.

¹⁶The local unemployment rate is measured at the level of regional spatial planning units (Raumordnungsregionen) that are aggregates of counties (Kreise). Overall, Germany consists of 96 Raumordnungsregionen.

A similar pattern can be found in the TBS sample. Table 6 shows that parents of employed adolescents are on average higher educated and more likely to be self-employed. Further, they rather live in financially well-off households. Adolescents who work, are on average 1 to 1.6 years older than their non-employed counterparts, they are more likely to attend university-preparatory high schools (Gymnasium) and less likely to live in East Germany.

In sum, adolescents who have had a job during full-time schooling have a more advantaged family background. Their parents are higher educated and earn more income, they have invested more time with meaningful leisure activities, and they are more likely to live in economically strong regions. A first interpretation of these findings is, that adolescents work besides school not because the households in which they live are under economic pressure and in need for further sources of income, but rather to improve their pocket money and/or of personal interest in the job.

— Insert table 5 here. —

— Insert table 6 here. —

The TBS gives a detailed overview of allocation of time. For each respondent time use on three days, two weekdays and one weekend day, in ten minute intervals is measured. I summarized the initial 230 activity categories to 19 thematically different groups. Tables 7 and 8 compare time allocation of teenagers with and without a job on a weekday and weekend day, respectively.¹⁷ On a normal weekday, see table 7, male (female) teenagers who have a job spend 23.1 (40.4) minutes less with sleeping than their non-employed counterparts. Further, males (females) spend 21.3 (24.7) minutes less with media.¹⁸ In contrast, they spend more time in transit and volunteer activities. On a normal weekend day, see table 8, employed teenagers spend again significantly less time with sleeping, 26 minutes less for male and 50.5 minutes less for female students. While the amount of time spent with

¹⁷The definition of being employed while attending full-time schooling is not consistent with the observed time use. Although some adolescents indicate that they do not hold a job, time allocated to employment specific activities can be found in their time diaries. For instance, male adolescents who negated the question, spent on average 13 minutes on a weekday with job specific activities. These 13 minutes split to 4.3 minutes spent with an internship, 3.3 minutes spent with an unpaid activity that was related to employment of other people, 2.2 minutes spent with own secondary employment, 2 minutes spent with activities related to own main employment, 0.7 minutes spent with breaks during working time, and 0.5 minutes spent with job search.

¹⁸The category *Media Use* includes activities such as watching TV and video, playing pc games, chatting and surfing the internet.

media does not differ between employed and non-employed teenagers, the former spend on average 10 minutes more with academic learning and 15 to 20 minutes more with relaxing. In addition, females who work, spend significantly less time with sports.

— Insert table 7 here. —

— Insert table 8 here. —

In sum, employed and non-employed school students differ only in few activity categories. On each day, students who work sleep on average between 20 and 50 minutes less. Further, on weekdays, they spend significantly less time with media and more time in transit. On weekends, they spend more time with academic learning and with relaxing.

Tables 9 and 10 show how work affects time allocation of employed teenagers on weekdays and weekend days, respectively. On average, male (female) school students work 162.7 (184.4) minutes on a weekday, see table 9. For female students work reduces time spent with learning and sports activities by more than 20 minutes, and housework, peer activities and media use by more than 30 minutes. For male students the largest reduction can be found in media use, relaxing, peer and sports activities. Therefore, work reduces the amount of time spent with activities that are suggested to be harmful for the development of skills such as relaxing and media use. However, it also reduces time spent with activities that are suggested to improve valuable skills, such as academic learning and sports activities.¹⁹

On a weekend day, see table 10, male and female adolescents work on average 167.7 and 200.8 minutes, respectively. Irrespective of gender, sleeping time, relaxing, and media use is most reduced. Further, more time is spent in volunteering on weekdays when they work.

— Insert table 9 here. —

— Insert table 10 here. —

¹⁹See Del Boca et al. (2012), Cardoso et al. (2010), and Felfe et al. (2011) for a more detailed discussion about what leisure activities are related to the acquisition of human capital and what activities are portrayed as harmful.

In sum, working reduces screen time and time spent being idle. Further, it reduces sleeping time on weekend days and time spent with sports activities. Time spent with activities related to academic learning such as doing homework or self-learning is also negatively affected by working, however, the reduction varies by gender and whether it is a weekday or weekend day. The only significant reduction of about 27 minutes can be found for females on a weekday.

4.2 Specification of Propensity Scores and Balancing Tests

To optimize the propensity score model specification, I make use of two strategies. On the one hand, I make the propensity score distribution of treated and untreated units as similar as possible. I compare observations with a given treatment status and for instance high values of the propensity score with observations who have the opposite treatment status and slightly smaller values of the propensity score. For this sample I identify all covariates in the propensity score model with respect to which both groups differ significantly. If these covariates are highly insignificant in the explanation, I delete them. This procedure makes the propensity score distribution of treated and non-treated students more similar without deleting relevant covariates. On the other hand, I use a balancing test suggested by Smith and Todd (2005) to check the balancing condition. Regressing each propensity score covariate on polynomials of the propensity score up to the fourth degree, treatment dummy, and interactions between treatment dummy and before-mentioned polynomials, I test whether all coefficients of covariates where the treatment dummy is included are jointly significant. If yes, then treatment status predicts values of the covariate, even after conditioning on the propensity score. If the covariate is balanced successfully conditional on the propensity score, it should not. If a specific covariate does not satisfy the Smith/Todd balancing test I either drop it if this covariate is highly insignificant in the propensity score model or I modify it to fulfill the balancing test criterion if the covariate has a significant effect on treatment assignment.²⁰ Table 11 gives an overview on some balancing tests and key figures of the propensity score models. For about 95% of all covariates in a given propensity score specification the Smith/Todd-test fails to reject at the 10% significance level, see panel (a). A test for equality of means for each covariate between treatment and control group shows a perfect balancing of means after matching, see panel (b). Panel (d) shows

²⁰In the latter, case I create interaction terms between the relevant covariate and further covariates. The motivation of this procedure is to control successfully for heterogeneous influences on the probability of being treated that would otherwise lead to a rejection of the Smith/Todd test of the corresponding covariates if not considered.

the share of observations within the common support region that is defined as the region between the smallest estimated propensity score of the treated sample and the largest estimated propensity score of the non-treated sample. Observations outside of the common support region are excluded from further analysis.²¹ Table 12 shows results of tests for joint equality of means for specific covariate groups. After matching, I find a perfect balancing of means between treatment and comparison group within each covariate category.

— Insert table 11 here. —

— Insert table 12 here. —

4.3 Early Employment and Character Skills

The psychological concept of locus of control can be attributed to Rotter (1966) and measures the individuals' perception of how much control over their life they possess. While external-oriented individuals are convinced that events in their life are results of luck and faith or other not controllable factors, internal-oriented individuals believe that they can determine events in their life by own efforts and actions. Strauser et al. (2002) find that people with a higher internal locus of control tend to persevere through tough times and to pursue a goal more successfully. Contrary to initial research, this paper assumes a not perfect reverse connection between internal and external locus of control. Therefore, I construct two factors representing both underlying dimensions. Table 13 shows estimated effects of teenage employment on both locus of control factors.²² On average male and female adolescents exhibit a similar external and internal locus of control, see column "Mean". Comparison of sample means of treated and control units suggest that treated teenagers are less externally oriented and more internally oriented, especially for males, see column "Raw Diff". Conditioning on family background and further characteristics, I do not find any significant effects of teenage employment on the external locus of control. While male adolescents face a small reduction in their external-oriented perception, for females an effect is less detectable. However, teenage employment

²¹However, they were used in an additional sensitivity analysis to check the robustness of estimated treatment effects.

²²Both factors are extracted by a factor analysis based on 10 items. The construction of both factors is identical with Dohmen et al. (2008). Further, both measures of locus of control and all other outcome variables are standardized. The estimated coefficients, therefore, can be interpreted as percentage change in terms of the outcome variable's standard deviation.

affects strongly the internal locus of control. Considering the ATE, employment during full-time schooling leads to an 18% of the standard deviation increase in the internal-oriented perception for male and an 14.7% increase for female adolescents. The effects are statistically significant.

Locus of control has already been proven empirically as crucial determinant of economic success. For instance, Coleman and DeLeire (2003), Cebi (2007), and Báron and Cobb-Clark (2010) find that a one standard deviation higher internal locus of control leads to a 1.4%-4.6% higher probability of high school graduation, partially even after controlling for cognitive abilities.²³ Further, Osborne-Groves (2005), Heckman et al. (2006), Cebi (2007), Flossmann et al. (2007), Judge and Hurst (2007), and Drago (2008) find significant effects on later earnings.²⁴ Osborne-Groves, for instance, find that a one standard deviation higher internal locus of control increases hourly wage by 5%-7%, conditioned on cognitive abilities.

— Insert table 13 here. —

As mentioned in Almlund et al. (2011) locus of control, self-esteem, and Big Five’s emotional stability measure a common construct termed “core self-evaluations”. They argue that a positive self-evaluation indicates generally a positive and proactive view of oneself and the relationship to the world. My findings indicate that working while attending secondary school at least affects positively the internal part of locus of control. However, to go one step further, I include Big Five personality traits to analyze how they will be affected by an early employment.

The objective of the Big Five model is to capture the basic structure of an individual’s personality. Costa and McCrae (1985) and McCrae and Costa Jr. (1987) verify that the basic dimensions of personality can be represented by five latent factors, namely extraversion, conscientiousness, openness (sometimes termed as intellect), agreeableness, and neuroticism. Extroverted people tend to be communicative and sociable while conscientious people are industrious and work efficiently. Openness measures individual’s valuation of artistic experiences and whether they possess an active imagination. Agreeable people tend to treat other people kindly and with respect and have a forgiving nature while people with neurotic tendencies are emotionally less stable. For instance, they get nervous easily and are less able to handle

²³However, the significance of internal locus of control change differently after including proxies for cognitive abilities. While Cebi find no significant effects anymore, Coleman and DeLeire identify significant effects only after including these proxies.

²⁴Instead of locus of control, Drago observes the relationship between earnings and self-esteem, a personality trait that is positively related to internal locus of control.

stressful moments. Table 14 gives an overview on the results.²⁵ Female adolescents are on average more extraverted, more conscientious, more open to new experiences, more agreeable but less emotionally stable than males. The effect of secondary school employment differ between male and female teenagers. While male teenagers become more extraverted by working during full-time schooling, females experience only a slight and insignificant increase. Regarding ATE, extraversion of young men is increased by 0.211 standard deviations and of young women by 0.101 standard deviations. Panel (b) and (d) show that in-school work experience does not shape conscientiousness and agreeableness considerably. While males suffer a reduction of 8.6% in conscientiousness, females experience an increase of 6.3%. The estimated effects on agreeableness are similar. Panel (c) shows that especially females' openness is affected by teenage employment while males experience only a minor positive effect. The effect on neuroticism, see panel (e), is in line with results for internal locus of control, at least for male teenagers. As mentioned before, the internal locus of control and Big Five's emotional stability are positively correlated and a part of the construct "core self-evaluations". For male teenagers I find a significant reduction in emotional instability of 14.7% of a standard deviation, for females an insignificant increase of 9.9%. Thus, for young males I find a meaningful and positive effect of early employment on two parts of individual's core self-evaluation.²⁶

What are the economic implications of these results? Salgado (1997), Hogan and Holland (2003), De Graaf and van Eijck (2004), and Nyhus and Pons (2005) find empirical relevance of some Big Five measures for economic success. Especially conscientiousness, emotional stability, and openness are confirmed to be consistent predictors of educational and labor market success. However, their findings vary by gender. For instance, Nyhus and Pons find that a one standard deviation increase in emotional stability is related to a 8.5% higher hourly wage for women and a 0.2% higher wage for men. De Graaf and van Eijck show that especially men profit from higher levels of openness with respect to educational attainment while women rather benefits from being more emotionally stable.²⁷

— Insert table 14 here. —

²⁵SOEP has 15 items that I used to extract Big Five factors by using factor analysis.

²⁶For young females I only identify a positive effect on the internal locus of control. The effect on emotional stability, however, is negative.

²⁷De Graaf and van Eijck use mean values of item responses as proxies for Big Five personality traits, where items are scaled between 1 and 7. For instance, they find that a one unit higher self-rated openness is related to 0.6 additional years of schooling for male and 0.2 additional years for female respondents.

One measure of human behavior is reciprocity. It describes how people react to kind and positive or impolite and negative interpersonal behavior of other people. While negative reciprocity captures the willingness to punish uncooperative behavior of other people, a positive reciprocal behavior is related to rewarding cooperative and kind behavior. Gouldner (1960), as the classical reference, elaborates the meaning of reciprocity for the stability of social systems. Perugini et al. (2003) develop a further measure that, in addition to reciprocal behavior, identifies the belief in reciprocity defined as “Beliefs in the efficacy and widespread use of reciprocity-based behaviors and expectations of other’s reciprocal behaviour (...) important (...) in predicting reciprocating behaviours ...”(Perugini et al., 2003, p.254). They find, that reciprocal behavior is more pronounced the stronger the belief in its efficacy is. Further, they confirm that negative and positive reciprocity are not only “two sides of the same mechanism” (Perugini et al., 2003, p.256) but capture two different personality dimensions. Table 15 shows the effect of teenage employment on both reciprocal behaviors.²⁸ Young men tend to be more negatively reciprocal. The estimated effects of teenage employment are mostly small and insignificant. The strongest effect can be found on positive reciprocity of males and amounts 0.128 standard deviations.

Brown et al. (2004), Dohmen et al. (2009), Dur et al. (2010), and Kube et al. (2012, 2013) find relationships between reciprocal behavior and employment patterns. Using contemporaneous measures of reciprocity, Dur et al. find that positively reciprocal people are more sensitive to promotion instead of monetary incentives. Dohmen et al. identify that people with high positive reciprocal behavior receive higher wages. Monthly earnings are increased by 0.9%-1.2% if positive reciprocity is increased by one unit.²⁹ In addition, they work harder and are less likely to be unemployed. Brown et al. confirm the latter finding. Further, they find that an increase in negative reciprocal behavior leads to a higher probability of unemployment.

— Insert table 15 here. —

²⁸Due to lack of information on reciprocal behavior in the youth biography questionnaire, I construct both factors by using six items obtained from the person questionnaire in 2005 and 2010, respectively. Both factors are then extracted by a factor analysis. In addition, I control for the individuals’ age when they completed the corresponding questionnaire.

²⁹In their paper positive reciprocity is measured as the mean value of three items concerning positively reciprocal behavior scaled from 1 to 7.

4.4 Early Employment and Occupational Choice Strategies

Employment during full-time schooling cannot only affect adolescents' character skills but can also provide valuable insights for adolescents into their interests and talents as well as offer information on the world of work. The youth biography questionnaire includes questions about their career and job plans, e.g. how they would seek a future occupation and how well they are already informed about the future occupation. Table 16 shows how in-school work experience affects adolescents' occupational choice strategies.³⁰ I distinguish between three different strategies. A passive strategy means that adolescents are either still unsure of their talents and what would be the "right" occupation or they do not have the goal to find the one true occupation and take things as they come. Teenage employment reduces the approval to these statements. Considering the ATE, I find for male and female teenagers a similar effect. The importance of these as passive strategies labeled ways is reduced by 12.1% and 12.9% of the standard deviation for male and females teenagers, respectively. Panel (b) shows effects on an active strategy. Active strategy means that adolescents have already made a lot of efforts and thoughts to decide which occupation could be the best for them. For male and female teenagers I find a significant increase of 13.5% and 18.4% of a standard deviation in the approval to this strategy. Panel (c) shows how a parental-dominated strategy to find a future occupation is affected by an early employment. This strategy illustrates the importance of parents' advices for making this decision. Again, the effect is quite similar for both gender. Male and female teenagers experience a reduction of 9.6% and 11.1% of a standard deviation in the importance of parents' advices. In sum, teenage employment reduces importance of both passive and parental-dominated strategies and increases at the same time the importance of an active strategy of occupation choice. For both gender the pattern of results is quite similar, however slightly stronger for females. The results confirm the hypotheses that working while attending a secondary school provides adolescents valuable information on their aptitudes and interests, helps them to reduce uncertainties and makes them more independent from their parents.

— Insert table 16 here. —

Further, I test whether an early employment actually helps teenagers to decide what careers they want. Two questions deal with (i) whether they already know the

³⁰Four statements measured on a four-point Likert scale from *Apply completely* to *Don't apply at all* to the importance of various strategies one can use to choose an occupation are used to extract three factors.

occupation they want to have and (ii) to which degree they keep informed about a future occupation.³¹ For the analysis I create two dummy variables.³² The first variable takes on the value one if they already know their future occupation and keep at least well informed, see panel (a) of table 17. The second variable is equal to one if they already know their future occupation and keep at least very well informed, see panel (b). For both measures of level of information I find stronger effects for male teenagers. Considering the ATE, teenage employment increases the probability of being informed to some degree (or at least the subjective belief of being well informed) by 16.5% (4.7%) for males (females). The results are quite similar if I use “very well informed/ with certainty ” as outcome, the magnitude of the effects is slightly smaller.

— Insert table 17 here. —

In sum, being employed during full-time schooling reduces less active and strengthens more active ways to find out which occupation would suit them. Especially for female teenagers this pattern is statistically significant. Considering, however, the effect on (subjective) level of information, we see that male teenagers profit more from a secondary school employment while for females only a small positive effect is detectable.

4.5 Sensitivity Analysis

To control for robustness, I include family-fixed effects to take account of unobserved family-specific characteristics, e.g. the family-specific part of all outcomes variables’ initial endowment. Deleting 1,606 children without sibling information and 695 adolescents living in families where all siblings have the same treatment status leads to a final sample of overall 561 teenagers. Tables 18, 19 and 20 show results of family-fixed effect regressions for locus of control, Big Five personality traits, and reciprocity.³³ For locus of control I find a stable result for the internal part. Considering ATE, the treatment effect increases slightly from 0.164 to 0.234 standard

³¹The second question is measured on a four-point scale from poorly informed to very well informed.

³²To make the results comparable to the former results, I standardize both dummy variables.

³³Rows labeled “Full Sample” show results estimated with a sample consisting of all adolescents from the before-implemented gender-specific regressions but pooled across gender. Rows labeled “Sibling Sample” and “Sibling Sample (FE)” show results estimated with a sample consisting only of observable siblings with different treatment status. The latter includes, in addition, family dummies in the regression to control for family-specific effects. A shortcoming of this procedure is that I use results from a pooled sample to confirm gender-specific effects. This is problematic

deviations, see table 18. Therefore, the positive effect of teenage employment on self-responsibility is robust to family-specific confounders. Treatment effects on Big Five personality traits are not robust to including family-fixed effects. Either they become vanishingly low or they reverse their direction. Similar applies to reciprocity. While estimated effects on negative reciprocity becomes more negative, effects on positive reciprocity change sign and become negative.

— Insert table 18 here. —

— Insert table 19 here. —

— Insert table 20 here. —

Tables 21 and 22 show results for occupational choice strategies and the level of information on future occupation, respectively. While treatment effects on active strategies vanish, treatment effects on both nonactive strategies, passive and parental-dominated strategies, are robust to including family-fixed effects, see table 21. For both level of information variables estimated effects vanish, see table 22.

— Insert table 21 here. —

— Insert table 22 here. —

In sum, after including family-fixed effects, teenage employment promotes the perception that one has control over what happens. Further, it reduces the uncertainty about own talents and interests and the importance of parents' advices for choosing a future occupation. A further sensitivity test is to include teenagers with propensity scores outside the common support region in the analysis sample. After including these teenagers the results keep stable.

because I implicitly assume that treatment effects will be affected in the same for males and female by considering family-fixed effects. However, that's not actually have to be. Treatment effects can be affected differently. I could overcome this problem by including interactions between gender and family dummies to control for gender-varying family-fixed effects. However, this is associated with serious multicollinearity problems and therefore not executable.

5 Concluding Remarks

During adolescence the importance of children's own time investments for the development of human capital grows. Working while attending full-time school, for instance, can transfer valuable human capital. A large body of literature investigates the effect of high school employment on later labor market outcomes. It is empirically proven that an early employment leads to higher earnings and better job positions but only if the amount of time spent working during high school does not exceed a critical value. Explanations of this positive relationship could be that an early employment supports the development of skills that are important for later success in life such as promoting responsibility and time management skills, reducing uncertainties about own talents and interests, and making them familiar with the world of work. Further, having a job during full-time schooling could foster the independence from their parents and boost the non-cognitive component of human capital. This paper tests some of these possible explanations by taking account of another strand of literature that deals with character skills as important determinants of labor market outcomes. For the non-cognitive component of human capital, I use character skills that are already empirically confirmed being rewarded on the labor market.

My main findings are as follows. First, I find a positive selection into teenage employment. Teenagers who have a job during school rather have higher-educated parents and rather live in financially well-endowed households. Their parents were less non-employed and rather self-employed in the past. Teenagers with a migration background and who live in regions with high unemployment rates are less likely to be employed while attending secondary school. Further, female adolescents tend to start working rather due to interest in comparison to males. If working, male teenagers tend to have delivery jobs while females vary stronger in the type of job they have. Delivery jobs, service jobs like waitressing, care jobs like baby-sitting, and tutoring are popular jobs of female school students. In addition, teenagers who work differ significantly in their time use from non-employed teenagers. On average, they sleep less, they spend less time with media use and they invest more time with academic learning, especially on weekends. If I concentrate on time use of employed teenagers only, I find that work reduces time spent with peer activities, academic learning, relaxing, and media use.

Employing a flexible strategy involving propensity score matching combined with regression adjustment, I find beneficial effects on character skills. Working while attending secondary school leads to a higher internal locus of control that is pos-

itively related to self-esteem. In addition to promoting character skills, teenage employment reduces the lack of information on which skills and talents school students have and also the importance of parents' advices with respect to their future career. Especially for female teenagers this pattern is visible. These results are robust to several model specifications and varying samples and robust to including family-fixed effects.

References

- Almlund, Mathilde, Angela L. Duckworth, James Heckman, and Tim Kautz (2011). “Personality Psychology and Economics”, in Eric A. Hanushek, Stephen Machin and Ludger Wössmann (eds.), *Handbook of the Economics of Education*, Vol. 4, Amsterdam: Elsevier Science, ch. 1, 1-181.
- Báron Juan D. and Deborah A. Cobb-Clark (2010). “Are Young People’s Educational Outcomes Linked to Their Sense of Control?”, *IZA Discussion Paper No. 4907*.
- Becker, Gary S. (1965). “A Theory of the Allocation of Time”, *The Economic Journal*, 75(299), 493-517.
- Blakemore, Sarah-Jayne and Suparna Choudhury (2006). “Development of the Adolescent Brain: Implications for Executive Function and Social Cognition”, *Journal of Child Psychology and Psychiatry*, 47(3), 296-312.
- Borghans, Lex, Angela L. Duckworth, James J. Heckman, and Bas ter Weel (2008). “The Economics and Psychology of Personality Traits”, *Journal of Human Resources*, 43(4), 972-1059.
- Borghans, Lex, Bart H.H. Goldsteyn, James J. Heckman, and Huub Meijers (2009). “Gender Differences in Risk Aversion and Ambiguity Aversion”, *Journal of the European Economic Association*, 7(2-3), 649-658.
- Brown, Martin, Armin Falk and Ernst Fehr (2004). “Relational Contracts and the Nature of Market Interactions”, *Econometrica*, 72(3), 747-780.
- Carneiro, Pedro and James J. Heckman (2003). “Human Capital Policy”, *IZA Discussion Papers* 821.
- Cawley, John, James J. Heckman, and Edward j. Vytlačil (2001). “Three Observations on Wages and Measured Cognitive Ability”, *Labour Economics*, 8(4), 419-442.
- Cebi, Merve (2007). “Locus of Control and Human Capital Investment Revisited”, *Journal of Human Resources*, 42(4), 919-932.
- Coleman, James S. (1961). “*The Adolescent Society: The Social Life of the Teenager and its Impact on Education*”, Free Press of Glencoe, New York.

- Coleman, Margo and Thomas DeLeire (2003). "An Economic Model of Locus of Control and the Human Capital Investment Decision", *Journal of Human Resources*, 38(3), 701-721.
- Costa, Paul T. and Robert R. McCrae (1985). "*The NEO personality inventory manual: Form S and Form R*", Psychological Assessment Resources, Odessa, Florida.
- Cunha, Flavio, James J. Heckman, Lance Lochner and Dimitriy V. Masterov (2006). "Interpreting the Evidence on Life Cycle Skill Formation", in Eric A. Hanushek, Stephen Machin and Ludger Wössmann (eds.), *Handbook of the Economics of Education*, Vol. 1, Amsterdam: Elsevier Science, ch. 12, 697-812.
- Cunha, Flavio, James J. Heckman and Susanne M. Schennach (2010). "Estimating the Technology of Cognitive and Noncognitive Skill Formation", *Econometrica*, 78(3), 883-931.
- De Graaf, Paul. M. and Koen van Eijck (2004). "The Big Five at School: The Impact of Personality on Educational Attainment", *The Netherlands' Journal of Social Sciences*, 40(1), 24-40.
- Dehne, Max and Jürgen Schupp (2007). "Persönlichkeitsmerkmale im Sozio-oekonomischen Panel (SOEP) – Konzept, Umsetzung und empirische Eigenschaften", DIW Research Notes 26.
- Del Boca, Daniela, Chiara Monfardini and Cheti Nicoletti (2012). "Self Investments of Adolescents and their Cognitive Development", *IZA Discussion Paper No 6868*.
- DeSimone, Jeff (2006). "Academic Performance and Part-Time Employment among High School Seniors", *Topics in Economic Analysis and Policy*, 6(1), 1-34.
- DeYoung, Colin G., Jacob B. Hirsh, Matthew S. Shane, Xenophon Papademetris, Nallakkandi Rejeevan, and Jeremy R. Gray (2010). "Testing Predictions From Personality Neuroscience. Brain Structure And The Big Five", *Psychological Science: A Journal of the American Psychological Society*, 21(6), 820-828.
- Dohmen, Thomas, Armin Falk, David Huffman and Uwe Sunde (2008). "Representative Trust and Reciprocity: Prevalence and Determinants", *Economic Inquiry*, 46(1), 84-90.

- Dohmen, Thomas, Armin Falk, David Huffman, and Uwe Sunde (2009). "Homo Reciprocans: Survey Evidence on Behavioral Outcomes", *Economic Journal*, 119(3), 592-612.
- Drago, Francesco (2008), "Self-Esteem and Earnings", *IZA Discussion Paper No 3577*.
- Dur, Robert, Arjan Non and Hein Roelfsema (2010). "Reciprocity and Incentive Pay in the Workplace", *Journal of Economic Psychology*, 31(4), 676-686.
- Ehling, Manfred, Erlend Holz and Irene Kahle (2001). "Erhebungsdesign der Zeitbudgeterhebung 2001/2002". *Wirtschaft und Statistik*, June 2001, 427-436.
- Flossmann, Anton L., Rémi Piatek and Laura Wichert (2007). "Going Beyond Returns to Education: The Role of Noncognitive Skills on Wages in Germany", University of Konstanz, DFG Research Group Heterogeneous Labor, unpublished working paper.
- Glaeser, Edward L., David I. Laibson, José A. Scheinkman, and Christine L. Soutter (2000). "Measuring Trust", *Quarterly Journal of Economics*, 115(3), 811-846.
- Gouldner, Alvin W. (1960). "The Norm of Reciprocity: A Preliminary Statement". *American Sociological Review*, 25(2), 161-178.
- Greenberger, Ellen and Laurence D. Steinberg (1986). "*When Teenagers Work: The Psychological and Social Costs of Adolescent Employment*", Basic Books, New York.
- Haveman, Robert, and Barbara Wolfe (1995). "The Determinants of Children's Attainments: A Review of Methods and Findings". *Journal of Economic Literature*, 33(4), 1829-1879.
- Heckman, James J., Jora Stixrud and Sergio Urzua (2006). "The Effects of Cognitive and Noncognitive Abilities on Labor Market Outcomes and Social Behavior", *Journal of Labor Economics*, 24(3), 411-482.
- Heckman, James J., and Yona Rubinstein (2001). "The Importance of Noncognitive Skills: Lessons From the GED Testing Program", *American Economic Review*, 91(2), 145-149.
- Heckman, James J., John E. Humphries, and Tim Kautz (2014). "The Economic and Social Benefits of GED Certification", in James J. Heckman, John E. Humphries, and Tim Kautz (eds.), *The Myth of Achievement Tests: THE*

- GED and the Role of Character in American Life*. Chicago, University of Chicago Press.
- Hirschmann, Charles and Irina Voloshin (2007). "The Structure of Teenage Employment: Social Background and the Jobs held by High School Seniors", *Research in Social Stratification and Mobility*, 25(3), 189-203.
- Hogan, Joyce and Brent Holland (2003). "Using Theory to Evaluate Personality and Job-Performance Relations: A Socioanalytic Perspective", *Journal of Applied Psychology*, 88(1), 100-112.
- Hotz, V. Joseph, Lixin C. Xu, Martha Tienda and Avner Ahituv (2002). "Are there Returns to the Wages of Young Men from Working while in School?", *Review of Economics and Statistics*, 84(2), 221-236.
- Imbens, Guido (2004). "Nonparametric Estimation of Average Treatment Effects under Exogeneity: A Review", *Review of Economics and Statistics*, 86(1), 4-29.
- Judge, Timothy A. and Charlice Hurst (2007). "Capitalizing on One's Advantages: Role of Core Self-Evaluations", *Journal of Applied Psychology*, 92(5), 1212-1227.
- Jugendarbeitsschutzgesetz – JArbSchg (2014, August 08). <http://www.gesetze-im-internet.de/bundesrecht/jarbschg/gesamt.pdf>
- Kalenkoski, Charlene M. and Sabrina W. Pabilonia (2012). "Time to Work or Time to Play: The Effect of Student Employment on Homework, Sleep, and Screen Time", *Labour Economics*, 19(2), 211-221.
- Kooreman, Peter (2009). "The Early Inception of Labor Market Gender Differences", *Labour Economics*, 16(2), 135-139.
- Kube, Sebastian, Michel A. Maréchal, and Clemens Puppe (2012). "The Currency of Reciprocity: Gift Exchange in the Workplace", *American Economic Review*, 102(4), 1644-1662.
- Kube, Sebastian, Michel A. Maréchal, and Clemens Puppe (2013). "Do Wage Cuts Damage Work Morale? Evidence from a Natural Field Experiment", *Journal of the European Economic Association*, 11(4), 853-870.
- Light, Audrey (2001). "In-School Work Experience and the Returns to Schooling", *Journal of Labor Economics*, 19(1), 65-93.

- Lindqvist, Erik and Roine Vestment (2011). "The Labor Market Returns To Cognitive And Noncognitive Ability: Evidence from the Swedish Enlistment", *American Economic Journal: Applied Economics*, 3(1), 101-128.
- Marsh, Herbert W. (1991). "Employment During High School: Character Building or a Subversion of Academic Goals?", *Sociology of Education*, 64(3), 172-189.
- Marsh, Herbert W. and Sabina Kleitman (2005). "Consequences of Employment During High School: Character Building, Subversion of Academic Goals, or a Treshold", *American Educational Research Journal*, 42(2), 331-369.
- McCrae, Robert R. and Paul T. Costa Jr (1987). "Validation of the Five Factor Model of Personality Traits Across Instruments and Observers", *Journal of Personality and Social Psychology*, 52(1) , 81-90.
- Mortimer, Jeylan T. (2010). "The Benefits and Risks of Adolescent Employment", *The Prevention Researcher*, 17(2), 8-11.
- Naef, Michael and Jürgen Schupp (2009). "Measuring Trust: Experiments and Surveys in Contrast and Combination", *emphSOEP Papers on Multidisciplinary Panel Data Research* 167, DIW Berlin.
- Neyman, Jerzy (1923), edited and translated by Dorota M. Dabrowska and Terrence P. Speed (1990). "On the Application of Probability Theory to Agricultural Experiments. Essay on Principles. Section 9", *Statistical Science*, 5(4), 465-472.
- Nyhus, Ellen K. and Empar Pons (2005). "The Effects of Personality on Earnings", *Journal of Economic Psychology*, 26(3), 363-384.
- Oettinger, Gerald S. (1999). "Does High School Employment Affect High School Academic Performance?", *Industrial and Labor Relations Review*, 53(1), 136-151.
- Osborne Groves, Melissa (2005). "How Important is your Personality? Labor Market Returns to Personality for Women in the US and UK", *Journal of Economic Psychology*, 26(6), 827-841.
- Perugini, Marco, Marcello Gallucci, Fabio Presaghi, and Anna Paola Ercolani (2003). "The Personal Norm of Reciprocity", *European Journal of Personality*, 17(4), 251-283.

- Rauscher, Kimberly J., David H. Wegman, John Wooding, Letitia Davis and Rozelinda Junkin (2013). "Adolescent Work Quality: A View From Today's Youth", *Journal of Adolescent Research*, 28(5), 557-590.
- Robins, James M., and Ya'acov Ritov (1997). "Towards a Curse of Dimensionality Appropriate (CODA) Asymptotic Theory for Semi-Parametric Models", *Statistics in Medicine*, 16(3), 285-319.
- Rosenbaum, Paul R. and Donald B. Rubin (1983). "The Central Role of the Propensity Score in Observational Studies for Causal Effects", *Biometrika*, 70(1), pp.41-50.
- Rotter, Julian B. (1966). "Generalized Expectancies for Internal versus External Locus of Control of Reinforcement", *Psychological Monographs: General and Applied*, 80(1), 1-25.
- Roy, Andrew D. (1951). "Some Thoughts on the Distribution of Earnings", *Oxford Economic Papers*, 3(2), 135-146.
- Rubin, Donald B. (1974). "Estimating Causal Effects of Treatments in Randomized and Nonrandomized Studies", *Journal of Educational Psychology*, 66(5), 688-701.
- Ruhm, Christopher J. (1997). "Is High School Employment Consumption or Investment?", *Journal of Labor Economics*, 15(4), 735-776.
- Salgado, Jesús F. (1997). "The Five Factor Model of Personality and Job Performance in the European Community", *Journal of Applied Psychology*, 82(1), 30-43.
- Schmidtke, Jennifer I., and Wendy Heller (2004). "Personality, Affect and EEG: Predicting Patterns of Regional Brain Activity Related to Extraversion and neuroticism", *Personality and Individual Differences*, 36(3), 717-732.
- Smith, Jeffrey A., and Petra E. Todd (2005). "Rejoinder", *Journal of Econometrics*, 125(1-2), 365-375.
- Schupp, Jürgen (2009). "25 Jahre Sozio-oekonomisches Panel – Ein Infrastrukturprojekt der empirischen Sozial- und Wirtschaftsforschung in Deutschland", *Zeitschrift für Soziologie*, 38(5), 350-357.
- Strauser, David R., Kristi Ketz and Jeanmarie Keim (2002). "The Relationship between Self-Efficacy, Locus of Control and Work Personality", *The Journal of Rehabilitation*, 68(1), 20-26.

- Todd, Petra E. and Kenneth I. Wolpin (2003). “On the Specification and Estimation of the Production Function for Cognitive Achievement”, *The Economic Journal*, Vol. 113(485), F3-F33.
- Wagner, Gert G., Joachim R. Frick, and Jürgen Schupp (2007). “The German Socio-Economic Panel Study (SOEP): Scope, Evolution and Enhancements”, *Schmollers Jahrbuch*, 127(1), 139-169.
- Wagner, Gert G., Jan Göbel, Peter Krause, Rainer Pischner, and Ingo Sieber (2008). “Das Sozio-oekonomische Panel (SOEP): Multidisziplinäres Haushaltspanel und Kohortenstudie für Deutschland – Eine Einführung (für neue Datennutzer) mit einem Ausblick (für erfahrene Anwender)”, *AStA Wirtschafts- und Sozialstatistisches Archiv*, 2(4), 301-328.
- Warren, John R. (2002). “Reconsidering the Relationship Between Student Employment and Academic Outcomes”, *Youth and Society*, 33(3), 366-393.

Tables

Table 1: Sample Size – SOEP

Men Have Had a Job?		Women Have Had a Job?	
Yes	No	Yes	No
1452		1489	
566 (38.41%)	886 (61.02%)	562 (38.58%)	927 (61.42%)

Source: SOEP V29. Note: Proportions calculated with SOEP sample weights.

Table 2: Information on First Part-Time Job – SOEP

	Men	Women	Difference
(a) Age of First Part-Time Job			
	14.41 (1.53)	14.25 (1.64)	0.16* (0.09)
(b) Reasons for First Part-Time Job			
Interest	0.118 (0.323)	0.157 (0.364)	−0.039* (0.022)
Improve Allowance	0.847 (0.360)	0.803 (0.398)	0.044* (0.024)

Source: SOEP V29. Note: Calculations use the SOEP sample weights. Standard deviations and standard errors (in column labeled “Difference”) are in parentheses. *, ** and *** denote significance at the 10%-, 5%- and 1%-level, respectively.

Table 3: Sample Size – TBS

Men Have a Job?		Women Have a Job?	
Yes	No	Yes	No
611		687	
153 (25.00%)	458 (75.00%)	147 (21.40%)	540 (78.60%)

Source: Time Budget Survey.

Table 4: Additional Information on Employment – TBS

Men		Women	
	Share		Share
(a) Type of Job			
1 Delivery Jobs	0.575	Delivery Jobs	0.211
2 Salesclerk	0.065	Other Service Jobs (Waitress)	0.156
3 Other Service Jobs (Waiter)	0.052	Care Jobs (Babysitter)	0.143
4 Tutors	0.046	Tutors	0.122
5 Agriculture and Forestry Jobs	0.039	Salesclerk	0.075
(b) Working Hours per Week			
4.24		4.87	
(4.37)		(4.24)	

Source: Time Budget Survey. Standard deviations are in parentheses.

Table 5: Descriptive Statistics for Key Covariates – SOEP

N	Men			Women		
	Have Had a Job?		<i>p</i> -Value	Have Had a Job?		<i>p</i> -Value
	Yes	No		Yes	No	
	1,452 566	886		1,489 562	927	
Parent With High School Diploma	0.275 (0.447)	0.219 (0.414)	0.016	0.288 (0.453)	0.182 (0.386)	0.000
Parent With Tertiary Education	0.376 (0.485)	0.338 (0.473)	0.183	0.389 (0.488)	0.301 (0.459)	0.002
Parental Earning (1,000 €)	22.888 (15.665)	20.315 (16.581)	0.004	22.222 (17.285)	19.877 (14.783)	0.006
Father not Employed	0.060 (0.198)	0.103 (0.237)	0.000	0.054 (0.181)	0.081 (0.214)	0.015
Father Self-Employed	0.074 (0.242)	0.088 (0.258)	0.310	0.095 (0.261)	0.093 (0.269)	0.855
Mother not Employed	0.261 (0.353)	0.329 (0.388)	0.001	0.304 (0.373)	0.332 (0.389)	0.185
Mother Self-Employed	0.083 (0.240)	0.048 (0.170)	0.001	0.079 (0.231)	0.054 (0.194)	0.031
Father's General Trust	0.097 (0.967)	-0.015 (0.956)	0.060	0.156 (1.064)	-0.139 (1.010)	0.000
Father's Past Trusting Behavior	0.070 (0.941)	-0.063 (1.005)	0.028	0.067 (0.979)	-0.018 (1.040)	0.177
Mother's General Trust	0.148 (1.079)	-0.061 (0.964)	0.000	0.096 (1.028)	-0.090 (0.952)	0.001
Mother's Past Trusting Behavior	0.067 (0.941)	-0.059 (1.028)	0.026	0.136 (1.013)	-0.066 (0.989)	0.000
High School	0.517 (0.500)	0.402 (0.491)	0.000	0.585 (0.493)	0.465 (0.499)	0.000
High School Track Recommendation	0.533 (0.499)	0.382 (0.486)	0.000	0.590 (0.492)	0.441 (0.497)	0.000
Migration Background	0.186 (0.389)	0.299 (0.458)	0.000	0.238 (0.426)	0.318 (0.466)	0.001
Sports on Daily Basis	0.306 (0.461)	0.252 (0.435)	0.031	0.170 (0.376)	0.122 (0.327)	0.012
Formal Extracurricular Activity at School	0.463 (0.499)	0.355 (0.479)	0.000	0.538 (0.499)	0.369 (0.483)	0.000
Less Formal Extracurr. Activity at School	0.666 (0.472)	0.548 (0.498)	0.000	0.756 (0.430)	0.606 (0.489)	0.000
East Germany	0.176 (0.381)	0.219 (0.414)	0.048	0.158 (0.365)	0.227 (0.419)	0.001
Grew up in City	0.641 (0.480)	0.731 (0.444)	0.000	0.658 (0.475)	0.723 (0.448)	0.008
Unemployment Rate	10.759 (4.211)	11.175 (4.629)	0.084	10.530 (4.494)	11.120 (4.897)	0.019

Source: SOEP V29. Columns labeled 'N' show the number of observations with non-missing values of the corresponding variable. Columns labeled 'Yes' and 'No' show the means and standard deviations (in parentheses) of each variable. The column labeled '*p*-Value' shows the *p*-value from a *t*-test of equality of means. Calculations use the SOEP sample weights.

Table 6: Descriptive Statistics for Key Covariates – TBS

	Men			Women		
	Have a Job?		<i>p</i> -Value	Have a Job?		<i>p</i> -Value
	Yes	No		Yes	No	
N	611			687		
	153	458		147	540	
Parent With High School Diploma	0.412 (0.494)	0.356 (0.479)	0.216	0.449 (0.499)	0.381 (0.486)	0.138
Self Employed Parent	0.248 (0.433)	0.186 (0.389)	0.094	0.279 (0.450)	0.176 (0.381)	0.005
Monthly Household Net Income						
Less Than € 1500	0.033 (0.178)	0.061 (0.240)	0.178	0.034 (0.182)	0.057 (0.233)	0.260
€ 1500 - € 3750	0.346 (0.477)	0.404 (0.491)	0.207	0.320 (0.468)	0.385 (0.487)	0.146
More Than € 3750	0.621 (0.487)	0.535 (0.499)	0.064	0.646 (0.480)	0.557 (0.497)	0.053
Age	15.719 (1.583)	14.683 (1.495)	0.000	16.184 (1.490)	14.770 (1.549)	0.000
High School	0.660 (0.475)	0.526 (0.500)	0.004	0.748 (0.435)	0.581 (0.494)	0.000
East Germany	0.124 (0.331)	0.231 (0.422)	0.004	0.102 (0.304)	0.243 (0.429)	0.000

Source: Time Budget Survey. The column labeled '*p*-Value' shows the *p*-value from a *t*-test of equality of means. Standard deviations are in parentheses.

Table 7: Time Use on a Weekday – TBS

	Men			Women		
	Have a Job?		Diff	Have a Job?		Diff
	Yes	No		Yes	No	
N	300	892		285	1053	
Sleep	473.3 (98.7)	496.3 (84.8)	−23.1*** (5.9)	457.2 (97.4)	497.6 (77.4)	−40.4*** (5.5)
Eating/Washing/Dressing	108.2 (49.3)	111.3 (48.5)	−3.1 (3.3)	135.3 (67.6)	127.2 (51.9)	8.1** (3.7)
Part-Time Job	35.8 (96.0)	13.0 (67.4)	22.8*** (5.0)	26.5 (81.2)	7.1 (50.2)	19.4*** (3.9)
School Attendance	219.3 (165.7)	218.8 (157.0)	0.5 (10.6)	208.2 (158.0)	212.9 (158.4)	−4.7 (10.6)
Learning Activities	48.5 (70.2)	45.1 (59.8)	3.3 (4.2)	62.8 (83.8)	56.4 (72.1)	6.5 (5.0)
Housework	39.4 (57.3)	40.1 (62.4)	−0.7 (4.1)	73.6 (83.3)	66.0 (73.2)	7.6 (5.0)
Technical Related Act.	6.6 (25.2)	6.1 (26.8)	0.5 (1.8)	6.9 (24.3)	5.1 (21.9)	1.9 (1.5)
Volunteering	13.5 (67.8)	7.8 (36.1)	5.7* (3.1)	9.4 (40.7)	4.6 (24.7)	4.8** (1.9)
Neighborly Help	2.1 (14.9)	1.6 (15.4)	0.5 (1.0)	2.5 (17.2)	2.2 (15.6)	0.4 (1.1)
Peer Activities	93.2 (128.4)	86.7 (123.2)	6.5 (8.3)	110.2 (130.5)	101.5 (111.7)	8.8 (7.7)
Relaxing	58.0 (103.1)	48.1 (88.8)	9.9 (6.2)	47.2 (76.0)	41.3 (71.2)	5.8 (4.8)
Sports Activities	37.4 (69.2)	43.9 (75.4)	−6.5 (4.9)	32.3 (61.6)	33.2 (64.3)	−0.9 (4.3)
Artistic Act.	8.2 (31.4)	5.4 (30.8)	2.8 (2.1)	9.1 (29.8)	10.5 (36.2)	−1.4 (2.3)
Reading	15.0 (37.5)	17.8 (36.1)	−2.7 (2.4)	26.1 (42.6)	26.5 (51.6)	−0.3 (3.3)
Media Use	170.0 (133.8)	191.3 (148.6)	−21.3** (9.7)	111.4 (107.9)	136.1 (112.9)	−24.7*** (7.5)
Listening to Music	11.2 (29.0)	10.1 (29.4)	1.0 (2.0)	12.6 (36.7)	11.7 (28.9)	0.9 (2.1)
Travelling	1.0 (6.9)	5.0 (39.4)	−4.1* (2.3)	4.0 (43.4)	4.1 (38.3)	0.0 (2.6)
Time Diary	3.4 (11.0)	3.8 (12.0)	−0.4 (0.8)	3.5 (10.6)	4.6 (15.2)	−1.2 (1.0)
Transit Time	94.6	84.5	10.1**	99.9	89.8	10.1**

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Table 7: Time Use on a Weekday – TBS

	Men			Women		
	Have a Job?		Diff	Have a Job?		Diff
	Yes	No		Yes	No	
	(78.4)	(61.8)	(4.4)	(71.0)	(70.2)	(4.7)
Σ	1438.5	1436.7	1.7	1438.9	1438.3	0.6
Not Covered	1.5	3.3		1.1	1.7	

Table 8: Time Use on a Weekend Day – TBS

	Men			Women		
	Have a Job?		Diff	Have a Job?		Diff
	Yes	No		Yes	No	
N	158	478		155	564	
Sleep	538.2 (117.6)	564.2 (102.4)	−26.0*** (9.8)	519.0 (125.7)	569.5 (101.9)	−50.5*** (9.7)
Eating/Washing/Dressing	123.2 (68.3)	128.3 (65.5)	−5.1 (6.1)	146.4 (60.7)	151.3 (66.9)	−4.9 (6.0)
Part-Time Job	32.9 (82.3)	8.3 (56.7)	24.6*** (5.9)	32.4 (91.0)	2.6 (27.2)	29.8*** (4.4)
School Attendance	4.4 (28.9)	7.1 (44.6)	−2.8 (3.8)	5.2 (39.0)	4.1 (33.8)	1.1 (3.2)
Learning Activities	37.2 (79.2)	27.1 (58.9)	10.1* (5.9)	38.6 (68.5)	28.5 (59.0)	10.2* (5.5)
Housework	46.1 (70.1)	49.1 (65.2)	−3.0 (6.1)	94.1 (100.5)	74.4 (80.9)	19.7** (7.8)
Technical Related Act.	6.4 (34.0)	10.8 (38.8)	−4.4 (3.5)	14.1 (53.4)	9.5 (39.7)	4.6 (3.9)
Volunteering	9.4 (47.3)	11.9 (52.9)	−2.5 (4.7)	11.4 (39.1)	15.4 (61.3)	−3.9 (5.2)
Neighborly Help	5.3 (31.2)	6.3 (38.0)	−1.0 (3.3)	1.1 (8.4)	7.6 (44.0)	−6.5* (3.6)
Peer Activities	138.2 (150.8)	133.7 (150.9)	4.5 (13.8)	173.5 (160.2)	160.5 (148.7)	13.1 (13.7)
Relaxing	85.3 (84.9)	70.0 (84.3)	15.2** (7.7)	92.1 (91.3)	72.6 (82.9)	19.6** (7.7)
Sports Activities	49.4 (93.2)	52.7 (98.3)	−3.3 (8.9)	21.4 (51.8)	42.7 (85.9)	−21.3*** (7.2)
Artistic Act.	6.4	7.4	−1.1	13.5	10.9	2.7

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Table 8: Time Use on a Weekend Day – TBS

	Men			Women		
	Have a Job?			Have a Job?		
	Yes	No	Diff	Yes	No	Diff
Reading	(23.9) 18.6	(33.9) 21.5	(2.9) −2.9	(59.6) 30.9	(38.0) 35.1	(4.0) −4.2
Media Use	(43.0) 247.3	(46.7) 249.1	(4.2) −1.8	(48.4) 157.7	(59.2) 159.7	(5.2) −2.1
Listening to Music	(166.3) 13.1	(177.3) 15.9	(16.0) −2.8	(147.3) 11.7	(131.6) 19.8	(12.3) −8.1*
Travelling	(33.4) 2.9	(40.3) 5.5	(3.6) −2.6	(34.9) 3.3	(50.3) 4.8	(4.3) −1.5
Time Diary	(29.0) 3.4	(50.2) 3.8	(4.2) −0.4	(33.3) 3.5	(41.1) 3.8	(3.6) −0.3
Transit Time	(12.1) 66.6	(15.2) 62.6	(1.3) 4.0	(10.5) 68.6	(12.5) 62.9	(1.1) 5.7
	(76.9)	(81.9)	(7.4)	(70.7)	(72.2)	(6.5)
Σ	1434.3	1435.6	−1.3	1438.6	1435.5	3.1
Not Covered	5.7	4.4		1.4	4.5	

Table 9: Time Use on a Working/Non-Working Weekday – TBS

	Men			Women		
	Working Day?			Working Day?		
	Yes	No	Diff	Yes	No	Diff
N	66	234		41	244	
Sleep	480.2 (85.1)	471.3 (102.3)	8.8 (13.8)	452.0 (84.2)	458.1 (99.6)	−6.1 (16.5)
Eating/Washing/Dressing	110.0 (53.7)	107.6 (48.1)	2.4 (6.9)	136.3 (56.2)	135.1 (69.4)	1.2 (11.4)
Part-Time Job	162.7 (146.5)	0.0 (0.0)	162.7*** (9.5)	184.4 (130.1)	0.0 (0.0)	184.4*** (8.3)
School Attendance	203.6 (156.6)	223.7 (168.3)	−20.0 (23.1)	195.9 (151.9)	210.3 (159.3)	−14.5 (26.7)
Learning Activities	47.3 (61.3)	48.8 (72.7)	−1.5 (9.8)	39.8 (59.8)	66.7 (86.7)	−27.0* (14.1)
Housework	35.9 (52.7)	40.3 (58.6)	−4.4 (8.0)	43.4 (48.0)	78.7 (86.9)	−35.3** (13.9)
Technical Related Act.	9.8	5.7	4.2	5.9	7.1	−1.3

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Table 9: Time Use on a Working/Non-Working Weekday – TBS

	Men			Women		
	Working Day?			Working Day?		
	Yes	No	Diff	Yes	No	Diff
Volunteering	(36.2) 7.7	(21.1) 15.2	(3.5) −7.4	(25.0) 7.3	(24.2) 9.8	(4.1) −2.4
Neighborhood Help	(32.2) 2.4	(74.8) 2.0	(9.5) 0.4	(33.0) 2.2	(41.9) 2.6	(6.9) −0.4
Peer Activities	(14.3) 65.3	(15.1) 101.0	(2.1) −35.7**	(14.1) 83.4	(17.7) 114.8	(2.9) −31.3
Relaxing	(89.1) 26.1	(136.6) 67.0	(17.8) −40.9***	(92.9) 29.8	(135.4) 50.1	(22.0) −20.3
Sports Activities	(45.1) 22.4	(112.6) 41.6	(14.2) −19.2**	(47.9) 13.4	(79.5) 35.5	(12.8) −22.0**
Artistic Act.	(54.2) 10.9	(72.4) 7.5	(9.6) 3.4	(39.9) 4.1	(64.1) 9.9	(10.3) −5.8
Reading	(36.9) 12.4	(29.7) 15.8	(4.4) −3.3	(18.3) 19.0	(31.3) 27.3	(5.0) −8.3
Media Use	(36.2) 135.3	(37.8) 179.7	(5.2) −44.4**	(32.8) 83.7	(44.0) 116.0	(7.2) −32.4*
Listening to Music	(115.7) 5.8	(137.1) 12.7	(18.5) −6.9*	(70.8) 16.1	(112.4) 12.0	(18.1) 4.1
Travelling	(19.3) 0.3	(31.1) 1.2	(4.0) −0.9	(57.0) 0.0	(32.2) 4.7	(6.2) −4.7
Time Diary	(2.5) 3.9	(7.7) 3.2	(1.0) 0.7	(0.0) 3.2	(46.9) 3.5	(7.3) −0.4
Transit Time	(13.0) 97.6	(10.4) 93.8	(1.5) 3.8	(7.9) 120.2	(11.0) 96.5	(1.8) 23.7**
	(57.7)	(83.4)	(10.9)	(59.7)	(72.3)	(11.9)
Σ	1439.7	1438.1	1.6	1440.0	1438.7	1.3
Not Covered	0.3	1.9		0.0	1.3	

Table 10: Time Use on a Working/Non-Working Weekend Day – TBS

	Men			Women		
	Working Day?			Working Day?		
	Yes	No	Diff	Yes	No	Diff
N	31	127		25	130	
Sleep	505.5	546.2	−40.7*	450.4	532.2	−81.8***

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Table 10: Time Use on a Working/Non-Working Weekend Day – TBS

	Men			Women		
	Working Day?			Working Day?		
	Yes	No	Diff	Yes	No	Diff
	(117.3)	(116.8)	(23.4)	(133.7)	(120.2)	(26.7)
Eating/Washing/Dressing	128.4	122.0	6.4	134.8	148.6	−13.8
	(66.3)	(68.9)	(13.7)	(41.2)	(63.6)	(13.2)
Part-Time Job	167.7	0.0	167.7***	200.8	0.0	200.8***
	(110.0)	(0.0)	(9.7)	(133.8)	(0.0)	(11.6)
School Attendance	2.9	4.7	−1.8	0.0	6.2	−6.2
	(16.2)	(31.3)	(5.8)	(0.0)	(42.5)	(8.5)
Learning Activities	27.7	39.5	−11.8	32.0	39.9	−7.9
	(53.9)	(84.2)	(15.9)	(48.9)	(71.7)	(15.0)
Housework	47.4	45.7	1.7	75.2	97.8	−22.6
	(89.9)	(64.7)	(14.1)	(88.4)	(102.6)	(21.9)
Technical Related Act.	5.5	6.6	−1.1	9.2	15.0	−5.8
	(16.1)	(37.1)	(6.8)	(30.0)	(56.8)	(11.7)
Volunteering	20.6	6.6	14.0	23.2	9.2	14.0*
	(82.5)	(33.6)	(9.4)	(73.6)	(28.1)	(8.5)
Neighborly Help	0.0	6.6	−6.6	3.6	0.6	3.0
	(0.0)	(34.7)	(6.3)	(18.0)	(4.8)	(1.8)
Peer Activities	121.3	142.4	−21.1	176.0	173.1	2.9
	(116.2)	(158.2)	(30.3)	(186.5)	(155.4)	(35.1)
Relaxing	36.1	97.2	−61.1***	53.2	99.6	−46.4**
	(48.6)	(87.7)	(16.4)	(65.6)	(93.8)	(19.6)
Sports Activities	30.0	54.2	−24.2	16.8	22.2	−5.4
	(68.8)	(97.9)	(18.6)	(56.0)	(51.1)	(11.3)
Artistic Act.	9.7	5.6	4.1	0.4	16.1	−15.7
	(20.4)	(24.7)	(4.8)	(2.0)	(64.9)	(13.0)
Reading	26.5	16.7	9.8	31.6	30.8	0.8
	(54.0)	(39.8)	(8.6)	(41.5)	(49.7)	(10.6)
Media Use	229.7	251.7	−22.0	138.8	161.3	−22.5
	(170.6)	(165.7)	(33.4)	(128.7)	(150.7)	(32.2)
Listening to Music	7.7	14.4	−6.7	20.4	10.1	10.3
	(19.3)	(36.0)	(6.7)	(50.5)	(31.0)	(7.6)
Travelling	0.0	3.6	−3.6	0.0	3.9	−3.9
	(0.0)	(32.4)	(5.8)	(0.0)	(36.3)	(7.3)
Time Diary	4.2	3.1	1.0	4.4	3.3	1.1
	(12.9)	(11.9)	(2.4)	(12.9)	(10.0)	(2.3)
Transit Time	66.8	66.5	0.2	69.2	68.5	0.7
	(70.9)	(78.5)	(15.4)	(58.8)	(73.0)	(15.5)
Σ	1437.7	1433.5	4.3	1440.0	1438.3	1.7

<continued on next page>

Table 10: Time Use on a Working/Non-Working Weekend Day – TBS

	Men			Women		
	Working Day?			Working Day?		
	Yes	No	Diff	Yes	No	Diff
Not Covered	2.3	6.5		0.0	1.7	

Table 11: Summary of Common Support and Balancing Tests on Variables Included in the Propensity Score

	Men	Women
(a) Smith/Todd-Test		
$p\text{-Value} \leq 0.05$	2	4
$p\text{-Value} \leq 0.10$	4	4
(b) Test of Equality of Means		
Unmatched	17	21
ATT-Weights	0	0
ATU-Weights	0	0
(c) Total number of Covariates		
	73	77
(d) Percent within Common Support Region		
Treated	99,5%	99,6%
Nontreated	99,4%	96,1%
(e) Pseudo R^2		
	0,130	0,172

Source: SOEP V29. Panel (a) shows the number of covariates for which the null hypothesis of no influence of the treatment status on a given covariate conditional on a polynomial of the propensity score is rejected. The rows in panel (b) show the number of covariates with p -values ≤ 0.05 in a t -test of equality of means in the treated and non-treated samples before and after matching. Panel (c) shows the final number of covariates used for estimating the propensity score model. Panel (d) shows the percentage of observations that are within the common support region separately by treatment status. The common support region lays between the minimum propensity score of a treated and the maximum propensity score of a non-treated individual. Panel (e) shows the Pseudo R^2 of the estimated propensity score model. All calculations use (in addition) SOEP sample weights.

Table 12: Hotelling Balancing Tests

	Men			Women		
	Unmatched	Matched		Unmatched	Matched	
		ATT	ATU		ATT	ATU
Parents	0.005	1.000	1.000	0.000	1.000	1.000
Parents' Character	0.146	1.000	1.000	0.000	1.000	1.000
Parents-Youth	0.587	1.000	0.998	0.017	1.000	0.999
Youth	0.000	1.000	0.995	0.000	1.000	1.000
Location	0.000	1.000	0.999	0.004	1.000	1.000
Annual Dummies	0.118	1.000	1.000	0.019	0.999	0.991

Source: SOEP V29. Note: The table shows the p -values from Hotelling tests of equality of means between the treated and comparison samples. Covariates of the propensity score models are separated into different categories. Category "Parents' character" consists of a subgroup of variables that measures parents' character skills such as Big 5, Locus of Control and Trust. These variables are also included in category "Parents" in addition to parents' earnings and education level. All calculations use (in addition) SOEP sample weights.

Table 13: Locus of Control

	N	Mean	Raw Diff.	ATT	ATU	ATE	OLS
(a) External Locus of Control							
Men	1268	-0.020 (1.031)	-0.218** (0.090)	-0.087 (0.074)	-0.088 (0.075)	-0.087 (0.073)	-0.085 (0.074)
Women	1262	0.021 (0.967)	0.009 (0.084)	0.002 (0.076)	0.013 (0.080)	0.009 (0.072)	0.012 (0.075)
(b) Internal Locus of Control							
Men	1268	0.022 (1.029)	0.194* (0.100)	0.180** (0.078)	0.180** (0.078)	0.180** (0.080)	0.187** (0.079)
Women	1262	-0.029 (0.955)	0.077 (0.085)	0.116 (0.075)	0.167** (0.081)	0.147* (0.075)	0.107 (0.075)

Source: SOEP V29. Note: All outcome variables are standardized. Calculations use SOEP sample weights. Standard deviations (mean) and standard errors are in parentheses. Standard errors of the treatment effects are bootstrapped with 500 replications and clustered at the family level. *, ** and *** denote significance at the 10%-, 5%- and 1%-level, respectively.

Table 14: BIG 5 Personality Traits

	N	Mean	Raw Diff.	ATT	ATU	ATE	OLS
(a) Extraversion							
Men	1284	-0.059 (1.030)	0.206** (0.085)	0.214*** (0.080)	0.208*** (0.075)	0.211*** (0.072)	0.208*** (0.076)
Women	1270	0.066 (0.958)	0.188** (0.077)	0.095 (0.069)	0.104 (0.072)	0.101 (0.067)	0.097 (0.070)
(b) Conscientiousness							
Men	1284	-0.140 (0.988)	-0.096 (0.084)	-0.120 (0.079)	-0.065 (0.081)	-0.086 (0.077)	-0.097 (0.078)
Women	1270	0.143 (0.990)	0.127 (0.086)	0.070 (0.070)	0.059 (0.073)	0.063 (0.069)	0.073 (0.071)
(c) Openness							
Men	1284	-0.116 (1.010)	0.028 (0.083)	0.040 (0.077)	0.065 (0.074)	0.055 (0.071)	0.037 (0.072)
Women	1270	0.120 (0.965)	0.219*** (0.078)	0.168** (0.069)	0.134* (0.072)	0.147** (0.068)	0.154** (0.069)
(d) Agreeableness							
Men	1284	-0.130 (0.993)	-0.044 (0.085)	-0.113 (0.080)	-0.077 (0.084)	-0.091 (0.080)	-0.108 (0.079)
Women	1270	0.121 (0.994)	0.167* (0.088)	0.091 (0.067)	0.097 (0.072)	0.095 (0.070)	0.096 (0.068)
(e) Neuroticism							
Men	1284	-0.214 (0.958)	-0.097 (0.081)	-0.120 (0.075)	-0.164** (0.071)	-0.147** (0.070)	-0.110 (0.073)
Women	1270	0.236 (0.985)	0.021 (0.081)	0.095 (0.074)	0.101 (0.078)	0.099 (0.076)	0.111 (0.073)

Source: SOEP V29. Note: All outcome variables are standardized. Calculations use SOEP sample weights. Standard deviations (mean) and standard errors are in parentheses. Standard errors of the treatment effects are bootstrapped with 500 replications and clustered at the family level. *, ** and *** denote significance at the 10%-, 5%- and 1%-level, respectively.

Table 15: Reciprocity

	N	Mean	Raw Diff.	ATT	ATU	ATE	OLS
(a) Negative Reciprocity							
Men	901	0.200 (0.986)	0.031 (0.105)	0.057 (0.097)	0.054 (0.096)	0.055 (0.099)	0.055 (0.098)
Women	905	-0.194 (0.973)	-0.176 (0.114)	-0.071 (0.083)	-0.060 (0.085)	-0.064 (0.081)	-0.069 (0.085)
(b) Positive Reciprocity							
Men	901	-0.040 (1.010)	0.292*** (0.101)	0.124 (0.093)	0.130 (0.093)	0.128 (0.098)	0.125 (0.094)
Women	905	0.028 (0.993)	0.142 (0.112)	0.059 (0.095)	0.057 (0.096)	0.058 (0.096)	0.056 (0.096)

Source: SOEP V29. Note: All outcome variables are standardized. Calculations use SOEP sample weights. Standard deviations (mean) and standard errors are in parentheses. Standard errors of the treatment effects are bootstrapped with 500 replications and clustered at the family level. *, ** and *** denote significance at the 10%-, 5%- and 1%-level, respectively.

Table 16: Occupational Choice Strategy

	N	Mean	Raw Diff.	ATT	ATU	ATE	OLS
(a) Passive Strategy							
Men	1338	-0.019 (1.019)	-0.101 (0.081)	-0.096 (0.076)	-0.137* (0.083)	-0.121 (0.075)	-0.099 (0.074)
Women	1347	0.031 (0.973)	-0.155** (0.072)	-0.158** (0.074)	-0.110 (0.081)	-0.129* (0.078)	-0.159** (0.074)
(b) Active Strategy							
Men	1338	-0.012 (1.000)	0.091 (0.078)	0.121 (0.074)	0.145* (0.076)	0.135* (0.075)	0.120 (0.074)
Women	1347	0.014 (0.995)	0.137* (0.079)	0.172** (0.071)	0.192*** (0.073)	0.184*** (0.069)	0.169** (0.071)
(c) Parental-Dominated Strategy							
Men	1338	0.085 (1.027)	-0.188** (0.086)	-0.112 (0.079)	-0.085 (0.081)	-0.096 (0.081)	-0.120 (0.079)
Women	1347	-0.089 (0.958)	-0.240*** (0.071)	-0.121* (0.062)	-0.104 (0.067)	-0.111* (0.064)	-0.126** (0.063)

Source: SOEP V29. Note: All outcome variables are standardized. Calculations use SOEP sample weights. Standard deviations (mean) and standard errors are in parentheses. Standard errors of the treatment effects are bootstrapped with 500 replications and clustered at the family level. *, ** and *** denote significance at the 10%-, 5%- and 1%-level, respectively.

Table 17: Level of Information on Future Occupation

	N	Mean	Raw Diff.	ATT	ATU	ATE	OLS
(a) To Some Degree							
Men	1427	0.002 (1.000)	0.088 (0.077)	0.155** (0.067)	0.171** (0.068)	0.165** (0.065)	0.153** (0.067)
Women	1431	-0.012 (0.999)	0.096 (0.077)	0.042 (0.069)	0.051 (0.072)	0.047 (0.069)	0.049 (0.068)
(b) With Certainty							
Men	1427	0.021 (1.015)	0.036 (0.078)	0.115* (0.070)	0.134* (0.073)	0.127* (0.072)	0.111 (0.069)
Women	1431	-0.031 (0.978)	-0.018 (0.070)	0.003 (0.071)	0.032 (0.073)	0.021 (0.069)	0.007 (0.068)

Source: SOEP V29. Note: All outcome variables are standardized. Calculations use SOEP sample weights. Standard deviations (mean) and standard errors are in parentheses. Standard errors of the treatment effects are bootstrapped with 500 replications and clustered at the family level. *, ** and *** denote significance at the 10%-, 5%- and 1%-level, respectively.

Table 18: Locus of Control

	N	Raw Diff.	ATT	ATU	ATE	OLS
(a) External Locus of Control						
Full Sample	2530	-0.110* (0.063)	-0.028 (0.053)	-0.027 (0.057)	-0.027 (0.054)	-0.016 (0.055)
Sibling Sample	515	-0.063 (0.133)	0.009 (0.111)	0.016 (0.116)	0.013 (0.107)	-0.040 (0.108)
Sibling Sample (FE)			0.128 (0.209)	0.148 (0.212)	0.138 (0.201)	0.109 (0.201)
(b) Internal Locus of Control						
Full Sample	2530	0.139** (0.067)	0.133** (0.056)	0.184*** (0.056)	0.164*** (0.055)	0.139** (0.057)
Sibling Sample	515	0.047 (0.120)	0.224* (0.115)	0.238** (0.115)	0.231** (0.109)	0.166 (0.107)
Sibling Sample (FE)			0.223 (0.182)	0.244 (0.184)	0.234 (0.174)	0.188 (0.179)

Source: SOEP V29. Note: All outcome variables are standardized. Calculations use SOEP sample weights. Standard errors are in parentheses. Standard errors of the treatment effects are bootstrapped with 500 replications and clustered at the family level. Because some replication samples suffer serious multicollinearity problems leading to unrealistic treatment effects I ignored all replications where the coefficient of determination exceeds the value 0.99. Therefore 500 is a maximum value. *, ** and *** denote significance at the 10%-, 5%- and 1%-level, respectively.

Table 19: BIG 5 Personality Traits

	N	Raw Diff.	ATT	ATU	ATE	OLS
(a) Extraversion						
Full Sample	2554	0.200*** (0.058)	0.158*** (0.058)	0.186*** (0.057)	0.175*** (0.054)	0.154** (0.061)
Sibling Sample	520	0.200 (0.127)	0.123 (0.127)	0.170 (0.128)	0.148 (0.124)	0.156 (0.131)
Sibling Sample (FE)			0.010 (0.175)	0.042 (0.169)	0.027 (0.167)	0.033 (0.170)
(b) Conscientiousness						
Full Sample	2554	0.018 (0.061)	-0.014 (0.056)	-0.004 (0.059)	-0.008 (0.056)	0.000 (0.057)
Sibling Sample	520	0.065 (0.134)	-0.036 (0.098)	0.017 (0.097)	-0.009 (0.094)	0.015 (0.100)
Sibling Sample (FE)			-0.071 (0.154)	-0.062 (0.145)	-0.067 (0.145)	-0.063 (0.147)
(c) Openness						
Full Sample	2554	0.125** (0.058)	0.100* (0.054)	0.108* (0.056)	0.105** (0.053)	0.094* (0.057)
Sibling Sample	520	0.055 (0.140)	-0.013 (0.118)	0.021 (0.119)	0.004 (0.115)	0.016 (0.120)
Sibling Sample (FE)			0.062 (0.169)	0.025 (0.164)	0.043 (0.162)	0.032 (0.162)
(d) Agreeableness						
Full Sample	2554	0.064 (0.062)	-0.002 (0.056)	0.016 (0.058)	0.009 (0.055)	0.017 (0.055)
Sibling Sample	520	0.085 (0.149)	0.007 (0.112)	0.029 (0.103)	0.018 (0.104)	0.029 (0.105)
Sibling Sample (FE)			0.121 (0.171)	0.102 (0.159)	0.111 (0.158)	0.094 (0.163)
(e) Neuroticism						
Full Sample	2554	-0.031 (0.059)	-0.017 (0.056)	-0.034 (0.054)	-0.027 (0.052)	0.010 (0.056)
Sibling Sample	520	-0.091 (0.145)	-0.022 (0.121)	-0.058 (0.119)	-0.041 (0.116)	-0.045 (0.117)
Sibling Sample (FE)			0.099 (0.205)	0.138 (0.198)	0.119 (0.198)	0.134 (0.198)

Source: SOEP V29. Note: All outcome variables are standardized. Calculations use SOEP sample weights. Standard errors are in parentheses. Standard errors of the treatment effects are bootstrapped with 500 replications and clustered at the family level. Because some replication samples suffer serious multicollinearity problems leading to unrealistic treatment effects I ignored all replications where the coefficient of determination exceeds the value 0.99. Therefore 500 is a maximum value. *, ** and *** denote significance at the 10%-, 5%- and 1%-level, respectively.

Table 20: Reciprocity

	N	Raw Diff.	ATT	ATU	ATE	OLS
(a) Negative Reciprocity						
Full Sample	1806	−0.085 (0.082)	−0.011 (0.063)	−0.003 (0.064)	−0.006 (0.063)	−0.013 (0.064)
Sibling Sample	394	−0.161 (0.166)	−0.186 (0.125)	−0.166 (0.119)	−0.176 (0.118)	−0.160 (0.115)
Sibling Sample (FE)			−0.462* (0.265)	−0.399 (0.257)	−0.430* (0.247)	−0.411 (0.259)
(b) Positive Reciprocity						
Full Sample	1806	0.218*** (0.075)	0.139** (0.065)	0.143** (0.063)	0.141** (0.064)	0.137** (0.064)
Sibling Sample	394	−0.003 (0.145)	0.092 (0.135)	0.083 (0.136)	0.088 (0.131)	0.084 (0.136)
Sibling Sample (FE)			−0.120 (0.377)	−0.112 (0.425)	−0.116 (0.376)	−0.105 (0.425)

Source: SOEP V29. Note: All outcome variables are standardized. Calculations use SOEP sample weights. Standard errors are in parentheses. Standard errors of the treatment effects are bootstrapped with 500 replications and clustered at the family level. Because some replication samples suffer serious multicollinearity problems leading to unrealistic treatment effects I ignored all replications where the coefficient of determination exceeds the value 0.99. Therefore 500 is a maximum value. *, ** and *** denote significance at the 10%-, 5%- and 1%-level, respectively.

Table 21: Occupational Choice Strategy

	N	Raw Diff.	ATT	ATU	ATE	OLS
(a) Passive Strategy						
Full Sample	2685	−0.126** (0.055)	−0.124** (0.053)	−0.113* (0.062)	−0.117** (0.056)	−0.128** (0.054)
Sibling Sample	540	−0.034 (0.125)	−0.033 (0.110)	−0.029 (0.115)	−0.031 (0.110)	−0.059 (0.108)
Sibling Sample (FE)			−0.118 (0.178)	−0.123 (0.181)	−0.121 (0.176)	−0.098 (0.176)
(b) Active Strategy						
Full Sample	2685	0.114** (0.055)	0.131** (0.053)	0.149*** (0.055)	0.142*** (0.052)	0.132** (0.055)
Sibling Sample	540	−0.010 (0.127)	0.062 (0.117)	0.035 (0.124)	0.048 (0.118)	0.051 (0.118)
Sibling Sample (FE)			−0.018 (0.180)	−0.011 (0.178)	−0.014 (0.177)	−0.013 (0.171)
(c) Parental-Dominated Strategy						
Full Sample	2685	−0.216*** (0.056)	−0.121** (0.054)	−0.094 (0.059)	−0.105* (0.055)	−0.125** (0.056)
Sibling Sample	540	−0.053 (0.137)	−0.017 (0.111)	−0.058 (0.112)	−0.038 (0.108)	−0.065 (0.112)
Sibling Sample (FE)			−0.057 (0.161)	−0.091 (0.157)	−0.074 (0.155)	−0.060 (0.153)

Source: SOEP V29. Note: All outcome variables are standardized. Calculations use SOEP sample weights. Standard errors are in parentheses. Standard errors of the treatment effects are bootstrapped with 500 replications and clustered at the family level. Because some replication samples suffer serious multicollinearity problems leading to unrealistic treatment effects I ignored all replications where the coefficient of determination exceeds the value 0.99. Therefore 500 is a maximum value. *, ** and *** denote significance at the 10%-, 5%- and 1%-level, respectively.

Table 22: Level of Information on Future Occupation

	N	Raw Diff.	ATT	ATU	ATE	OLS
(a) To Some Degree						
Full Sample	2858	0.092*	0.097**	0.103**	0.100**	0.108**
		(0.055)	(0.049)	(0.050)	(0.048)	(0.051)
Sibling Sample	560	0.066	0.071	0.069	0.070	0.075
		(0.126)	(0.101)	(0.100)	(0.100)	(0.103)
Sibling Sample (FE)			0.000	0.012	0.006	0.008
			(0.145)	(0.144)	(0.144)	(0.148)
(b) With Certainty						
Full Sample	2858	0.009	0.069	0.081	0.077	0.073
		(0.053)	(0.048)	(0.052)	(0.048)	(0.047)
Sibling Sample	560	-0.132	-0.098	-0.086	-0.092	-0.090
		(0.127)	(0.110)	(0.110)	(0.110)	(0.107)
Sibling Sample (FE)			-0.031	-0.012	-0.021	-0.024
			(0.157)	(0.159)	(0.157)	(0.163)

Source: SOEP V29. Note: All outcome variables are standardized. Calculations use SOEP sample weights. Standard errors are in parentheses. Standard errors of the treatment effects are bootstrapped with 500 replications and clustered at the family level. Because some replication samples suffer serious multicollinearity problems leading to unrealistic treatment effects I ignored all replications where the coefficient of determination exceeds the value 0.99. Therefore 500 is a maximum value. *, ** and *** denote significance at the 10%-, 5%- and 1%-level, respectively.