Personality Traits and Social Inequality

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Framework

Preface

This document is the framework paper of the thesis "Personality traits and social inequality". Its aim is to introduce the main arguments of my thesis and summarize the findings of the three research articles that compose this project. The thesis is composed by the following articles:

1. "Don't Take it Personally, but you're Fired. The Effects of Personality Traits on Job Terminations and Unemployment Incidence"

2. "Getting Ahead: The Effects of Personality Traits on Job Mobility"

3. "The Apple does not Fall far from the Tree. The Intergenerational Transmission of Personality Traits"

The main goal of this thesis is to show the effects of personality traits on intra- and intergenerational social inequality. Personality traits, understood as the abiding patterns of feeling, thoughts, and behaviors that reflect individual's dispositions to react in different situations, have been overlooked for a long time in sociological research. The inclusion of these traits in analyses of social inequality can contribute to our understanding of the factors and the ways inequalities are rising.

The first two articles, "Don't Take it Personally, but you're Fired" and "Getting Ahead: The Effects of Personality Traits on Job Mobility" analyze how personality traits affect different labor market outcomes: unemployment incidence and job mobility. In these articles, I show that the inclusion of personality traits provides an interesting explanation of within-group differences amongst equally qualified individuals. Finally, the third article, "The Apple does not Fall far from the Tree" examines how differences in parental socio-economic status influence the development of children's personality traits.

Introduction

Since the beginning of the 1970s the majority of Western democratic countries have experienced a rise in income inequality (Katz and Autor, 1999; Morris and Western, 1999; Myles, 2003; Weeden et al, 2007; Brady, 2009). The main factors accounting for these dramatic changes are manifold and the importance attributed to them varies between disciplines (Esping-Andersen, 2007). Nevertheless, a consensus amongst academics exists around which factors are contributing to the growth of social inequalities (Neckerman and Torche, 2007). These include explanations based on changes in industrial relations systems and minimum wages (Katz and Autor, 1999; Card et al, 2004), a rise in the returns to education, benefiting college educated individuals over less skilled ones (Gottschalk, 1997; Katz and Autor, 1999; Gottschalk and Danziger, 2005), and the growth of within-group inequalities (Juhn et al, 1993; Lemieux, 2006; Weeden et al, 2007).

Amongst these topics, the rise of within-group inequalities has been mostly overlooked in sociological research for many years with the exception of a few accounts (Weeden et al, 2007). Some scholars attribute this to the extensive use of "class-centered" explanations in sociological studies (Myles, 2003; Kenworthy, 2007). Yet, most of the increase in social inequality has happened "inside class and occupational groups, not between them" (Myles, 2003: 555). The growth in what has been defined as residual inequality (Juhn et al, 1993; Katz and Autor, 1999; Acemoglu, 2002; Card and DiNardo, 2002; Lemieux, 2006) can be partly attributed to the rising demand of unobserved skills (Weeden et al, 2007).

In recent years, economists have devoted a considerable amount of research to explanations based on skill-biased technological change (SBTC) (Acemoglu, 2002). These economists tend to argue that the rise in within-group variance in earnings is explained by the rising demand of computerization and other technological skills (Acemoglu, 2002; Machin, 2008). However, this claim has been heavily contested (Neckerman and Torche, 2007), as "no one has satisfactorily measured SBTC" (DiPrete, 2007: 608). Moreover, critics have also pointed out that the rise of inequalities has preceded the spreading out of technologies (Neckerman and Torche,

2007). Additionally, the increasing diffusion of computer technologies does not coincide with the stabilization of inequalities (Bernstein and Mishel, 2001; Card and DiNardo, 2002; Lemieux, 2006). Finally, the application of the SBTC hypothesis to explain inequality levels in Europe is problematic in itself: whereas the level of technological diffusion in Europe is similar to that of the US, the level and the extent of inequalities is not (DiPrete, 2007). These explanations are therefore not sufficient to explain why inequalities have risen.

A more promising explanation of within-group inequalities can be found in the existence of unobserved characteristics like cognitive skills and personality traits (Levy and Murnane, 1992). It is often recognized that cognitive skills are important predictors of socio-economic outcomes. Indeed, economical research has shown that non-cognitive or personality traits are at least as important as cognitive abilities in explaining a wide range of outcomes (Borghans et al, 2008; Almlund et al, 2011). Two articles have illustrated this idea very well.

The first article is Heckman and Rubinstein's (2001) study on the effects of the GED test on wages. Interestingly, the authors find that GED holders exhibit similar cognitive skills as normal high school finishers, but at the same time display less desirable non-cognitive traits. These differences in personality traits are translated into a 10 per cent wage loss compared to normal finishers. The second article that provides additional evidence on the importance of personality traits is Heckman et al.'s (2006) research on the Perry Pre-School program. The study's results show that the interventions that occurred during an individual's early childhood did not affect its cognitive development, but resulted in long and beneficial changes in individuals' personality traits (Almlund et al, 2011). These changes, in turn, improved its posterior social and economic success (Heckman et al, 2006).

These findings are complemented by recent research in sociology that points to personality traits as a possible cause for within-group inequality. Studies analyzing occupational attainment and allocation processes have examined which characteristics employers demand from

their employees (Jackson, 2007; Doerfler and van de Werfhorst, 2009). The results of these studies display that non-cognitive traits are becoming increasingly important in occupational attainment and that they are especially relevant for accessing higher-class jobs (Jackson, 2007; Doerfler and van de Werfhorst, 2009). Furthermore, they show that a major factor in the changing demand in the labor market is explained by changes within occupational groups (Doerfler and van de Werfhorst, 2009).

The return to personality traits

Personality traits are becoming relevant factors in the study of social stratification, as they help to explain a wide range of outcomes For instance, studies have found that divergences in personality traits explain account for within-group wage differences among equally educated and experienced individuals (Bowles et al, 2001; Farkas, 2003). Other studies have shown how personality traits affect labor outcomes like wages (Nyhus and Pons, 2005; Mueller and Plug, 2006; Heineck and Anger, 2010) and occupational attainment (Jackson, 2006; Cobb-Clark and Tan, 2011).

However, the mechanisms through which personality traits affect the different outcomes remain far from clear. For instance, although the direct effects of personality traits on wages have already been spelled out, some authors argue that part of their influence occurs indirectly through education, occupational choice, absenteeism, unemployment, and self-employment (Almlund et al, 2011). Other authors claim that some personality traits are productivity-enhancing, in the sense that they are related to higher job performance (Barrick and Mount, 1991; Salgado, 1997) or affect individual's reaction to incentive schemes set up by firms (Bowles et al, 2001; Farkas, 2003). A third mechanism links personality traits to an individual's preferences. These can be taste-based preferences (Mueller and Plug, 2006; Nandi and Nicoletti, 2014) or economic (Borghans et al, 2008; Almlund et al, 2011).

Nevertheless, most of the existing research has not considered these mechanisms. In the first part of my thesis, I try to address this issue and try to identify the channels through which personality traits affect different labor market outcomes. In addition, I have chosen two labor market outcomes, where the effects of personality traits have either not been examined (unemployment incidence) or research is scant (job mobility).

The first article "Don't Take it Personally, but you're Fired" approaches the topic of unemployment and seeks to understand the ways in which personality traits affect unemployment incidence. To my knowledge, the only research in a similar direction is Uysal and Pohlmeier's (2011) study on how personality traits affect the duration of unemployment. Research on unemployment incidence is of especial relevance in sociology, since "unemployment contributes to inequality and helps in particular to account for the eroding status of young adults." (Esping-Andersen, 2007: 642).

My article goes beyond the analysis of personality traits on unemployment incidence by highlighting the need of including job terminations in this type of analysis. My results show the existence of differences in the effects of personality traits on unemployment incidence once we take into account how an employment relationship was ended. Importantly, my findings seem to support the argument about the existence of productivity-enhancing and preference-related mechanisms. Finally, my results also indicate the existence of a gender-stereotyped discrimination due to the influence of personality traits.

My second article "Getting Ahead: the Effects of Personality Traits on Job Mobility" examines how personality traits affect different types of occupational mobility. This topic is also relevant, as employment careers have become increasingly unstable, involving interruptions and multiple employer changes (Fuller, 2008). Noteworthy, the existing literature has been unable to account for part of the variance in job mobility. In my article, I suggest that part of the unexplained variance can be explained by unobserved differences in ability and preferences

(Fuller, 2008). Crucially, my results show that personality traits affect job mobility, even after controlling for education and occupational indicators. My findings suggest the existence of both productivity-enhancing and preference-related mechanisms, yet additional research is required to fully understand the specific ways in which personality traits affect mobility.

The reproduction of inequalities

Research on personality traits has shown that non-cognitive skills have important effects on intragenerational inequality (Farkas, 2003). Possessing certain personality traits improves individual's socio-economic success (Bowles et al, 2005). Less known and studied, personality traits also contribute to the rise of intergenerational social and economic inequality. On the one hand, personality traits are partly genetically inherited. On the other, they are also subject to the influence of socialization or environmental processes (Jang et al, 2002; Roberts, 2006). While it can be assumed that the genetic component of personality traits is randomly distributed (Bouchard and Loehlin, 2001), differences in social class can affect the environmental component. This leads to an unequal development of personality traits. Parents from advantaged social background possess the resources and the knowledge to invest in and transmit personality traits that will contribute to the future success of their offspring (Bowles et al, 2001). These children enjoy a considerable advantage over the offspring of well-off families from early on. Moreover, these differences will widen with time, as the skills acquired in one phase of the life circle affect the acquisition and the development of future skills (Carneiro and Heckman, 2003; Cunha and Heckman, 2008). The unequal transmission of personality traits results in the broadening of social and economic inequalities.

Amongst the factors that affect the development of personality traits, sociological research has shown that differences in parental socio-economic status are determinant (Hoff et al, 2002; Bowles et al, 2005). Higher class parents are able to positively influence the cognitive

and personal development of their children, as they possess the knowledge and the resources to do it (Farkas, 2003). Besides providing a stimulating environment to raise their children, parents from advantaged background dedicate more time than lower educated parents to child-rearing activities (Bianchi, 2006). Moreover, the quality of these time-investments is determinant in generating an unequal development (Esping-Andersen, 2009; Lareau, 2011).

In the last of my three articles, "The Apple does not Fall far from the Tree", I approach this topic and examine how personality traits are transmitted from parents to their offspring. While there is a direct inheritance (both genetic and environmental) between parents and children's personality traits (Groves, 2005; Loehlin, 2005), there are other factors that have an important influence. Among these factors, my results show that the level of parental education, the type of child-rearing practices, and the use of external childcare stand out as relevant ones. These findings, together with evidence from other studies (see Farkas, 2003 for an overview) present a pessimistic scenario. Class-differences in the promotion and development of children's personality traits contribute to the reproduction and reinforcement of inequalities across generations. However, the acknowledgement of the transmission mechanisms provides, at the same time, a solution to the problem. As several studies have shown (Carneiro and Heckman, 2003; Esping-Andersen, 2009), policies targeted at reducing early childhood inequalities have a positive effect on reducing future inequalities. Amongst these, the universal provision of high quality external childcare is of extreme relevance (Esping-Andersen, 2009).

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Don't Take it Personally, but you're Fired. The Effects of Personality Traits on Job Terminations and Unemployment Incidence

Abstract

Personality traits have been shown to account for an important part of different socio-economic outcomes. However, so far no research has analyzed how personality characteristics affect unemployment incidence. In this article, I use data from the German Socio-Economic Panel (SOEP) to show that the Big Five personality traits affect the probability of becoming unemployed. I argue that it is crucial to account for different types of job terminations, when analyzing the mechanisms that relate personality traits to unemployment. My results show pivotal differences in the effects of the covariates on unemployment incidence when considering job terminations.

Introduction

Unemployment has been a recurring topic in sociology due to its effects on social inequality and on the life trajectories of individuals. The negative socio-economic consequences of becoming unemployed are various. First, workers face a loss of steady income and of tenure-related fringe benefits. Second, they incur in human capital depreciation and negative health effects, especially when the resulting unemployment spell is long (Venn, 2009). These effects also spill over into the private sphere, consequently affecting the well-being of households. Third, unemployment has also consequences on social exclusion (Gallie et al, 2003) and on political participation (Rosenstone, 1982).

During the last decades a renewed interest in the study of unemployment has emerged due to the alteration of traditional employment patterns and occupational careers caused by globalization, technological change, and the transition towards a service economy (Blossfeld et al, 2006). Furthermore, as some scholar argues, the increasing flexibility measures (new forms of hiring, lowering of dismissal costs, fixed-term contracts) have led to rising social inequality and a

decoupling of labor market risks from social class (Polavieja, 2005). As Beck (1992) has claimed, there has been an individualization of risk exposure. Although this approach has been widely contested, studies in social stratification have witnessed an increase in within-group differences (Juhn et al, 1993; Lemieux, 2006). These differences that are often related to productivity differentials can be partly attributed to divergences in personality traits (Bowles et al, 2001).

Personality traits are becoming central to the study of social stratification. For instance, scholars have found that personality traits account for an important part of raising wage differences amongst equally educated individuals (Bowles et al, 2001; Farkas, 2003). Other studies have unveiled the role that these traits play in explaining wage differentials (Nyhus and Pons, 2005; Mueller and Plug, 2006; Heineck and Anger, 2010), occupational sorting (Jackson, 2006; Cobb-Clark and Tan, 2011), job search and unemployment duration (Uysal and Pohlmeier, 2011). However, so far no research exists on how personality traits affect unemployment incidence and job terminations. This is an important gap to fill, since unobserved differences in personality can account for an important variation in the risk of becoming unemployed.

The aim of this article is twofold. First, I show that personality traits affect job terminations and unemployment incidence using data of the German Socio-Economic Panel (SOEP). They do so through different channels: first, certain personality traits act as a productivity-enhancing mechanism. These traits affect job performance (Barrick and Mount, 1991) and the reactions to incentive schemes set by employers to increase workers' effort and productivity levels (Bowles et al, 2001). The second mechanism links personality traits to individual preferences. These can be taste-based preferences that are reflected in educational and occupational choices (Jackson, 2006; Mueller and Plug, 2006; Nandi and Nicoletti, 2014) or economic preferences like risk aversion, discount rates, and preferences for leisure (Borghans et al, 2008; Almlund et al, 2011). These preferences affect individual's decisions on staying or leaving a job. Finally, some authors have suggested that employers might discriminate workers on behalf of their personality and that certain traits might affect the bargaining power of actors at

the workplace, thus affecting the probability of losing one's job (Mueller and Plug, 2006; Nandi and Nicoletti, 2014).

Second, I argue for the importance of including job terminations in the study of unemployment incidence. My results show pivotal differences in the effects of the covariates on unemployment incidence, the mechanisms of which can be shown more adequately when considering job terminations. Job terminations have important implications for an individual's posterior occupational trajectory (Fuller, 2008). In a context of imperfect and asymmetrical information, employers use former job terminations as a signal about a worker's productivity. Gibbons and Katz (1991) have shown that firms tend to identify dismissed employees as "low productivity" workers. As a consequence, these are penalized with lower postdisplacement wages and longer unemployment spells. Interestingly though, employees that lose their job due to plant closure do not face the same penalties (Gibbons and Katz, 1991). Thus, the form in which a contractual relationship ends is both important in methodological and substantive terms as divergences in the effects of the covariates become blurred. In the following I first discuss different types of job terminations, before turning to the mechanisms by which personality traits affect these.

Theoretical background

Although the sociological literature on unemployment is far-reaching (see Gangl, 2003; Blossfeld et al, 2006), there seems to be limited evidence on how different mechanisms and processes lead to unemployment. Most of the research on mobility has focused on job-to-job and on job-to-non-employment moves. Only few studies have stressed the importance of differentiating between different types of terminations, even if it has been shown that the processes and determinants underlying each of them differ significantly (Tuma, 1976; Hachen, 1990; Park and Sandefur, 2003).

A first type of termination refers to voluntary moves. These kind of shifts have been usually approached in sociology through the use of the reward-resource model (Tuma, 1976), which predicts that a worker's decision to quit his job will depend on the difference between the expected attainment and present job rewards. Individuals are aware of the value of their acquired resources (education and different types of human capital) and search for the position where job rewards meet their investments. If they believe that the utility derived from their current job is lower than their expected attainment levels, they will quit and search for better alternatives. Yet, as they come close to their expected attainment levels, individuals are likely to remain in their job (Hachen, 1990). Further reasons of why individuals could decide to resign from their current position include acquiring more education, psychological issues, health concerns and family responsibilities.

A second type of termination relates to involuntary job terminations. These represent the employer's decision to bring a contractual relationship with a worker to an end. Research has usually assumed that dismissal is the main cause of involuntary job terminations. Contrary to voluntary moves, the rewards-resources model does not provide an adequate theoretical framework to study involuntary job terminations (Hachen, 1990; Park and Sandefur, 2003). Researchers, who have investigated employer-initiated dissolutions more deeply, suggest the use of matching models (Gangl, 2003). These are built on the idea that job matches are formed in the labor market, by workers who offer their labor in exchange for earnings and other benefits attached to the job. The main concern of these models is to explain why matches that were once beneficial are dissolved after certain time. Two different explanations are provided. The first is based on productivity shocks (Mortensen and Pissarides, 1994, 1999), whereas the second focuses on the quality of the matches (Jovanovic, 1979).

Productivity shocks refer to exogenous changes in the labor market that affect the value of existing employment relationships. Technological and organizational innovations, alterations in the wage structure, and changes in the product markets and in the demand for goods and

services have been shown to affect unemployment incidence (Di Prete et al, 1997). Due to these exogenous shocks many firms are forced to close entire plants, disregarding most of its entire workforce. However, these shocks do not always translate directly into job loss, as firms and employees are sometimes able to readjust and adapt to these changes internally (Gangl, 2003).

In contrast, job terminations based on changes in match quality follow a different rationale. This approach considers employment relationships as an "experience good" (Jovanovic, 1979). Employers hire workers under incomplete information and the viability of the match is revealed during the course of the employment relationship. With the passing of time, firms can monitor their employees' performance and therefore gain more accurate information about the quality of their workers. In those cases, where workers perform below the employers' reservation productivities employers will put the relationship to an end by dismissing the former. Besides productivity, there are other factors like how well a worker adapts to the firm's specific work environment and coexist with other employees that can influence the quality of a match.

Although there is a general agreement on the necessity of studying voluntary and involuntary moves separately (Tuma, 1976), only a few studies have addressed this. Hachen (1990), as well as Park and Sandefur (2003) find that ethnicity affected the probability of being laid off, but not the likelihood of quitting. A more recent study of job terminations by Bergemann and Mertens (2011) concludes that men with either fixed-term contracts or a high degree of non-routine interactive tasks faced increasing probabilities of being displaced and become unemployed.

However, two crucial factors have been inadequately addressed in this research. First, using educational attainment and different career indicators as productivity measures, does not allow capturing within-group differences in productivity.[1] Additionally, there are other characteristics of a worker's performance besides productivity that might concern an employer.

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[1] The literature on personnel psychology and human resources provide different alternatives to capture productivity differentials (see e.g. Cascio and Ramos, 1986; Bartolucci, 2013).

Second, these studies have not adequately approached the importance of individual preferences and expectations for moving away from the current job. For instance, the decision of staying employed in the same job or searching for alternatives is highly dependent on individual preferences. These shape the expected utilities of the different alternatives. Personality traits provide an interesting way to solve these issues as they can be linked both to job performance (Barrick and Mount, 1991) and to preferences (Almlund et al, 2011; Borghans et al, 2008).

Personality traits

A leading psychologist has described personality traits as "the relatively enduring patterns of thoughts, feelings, and behaviors that reflect the tendency to respond in certain ways under certain circumstances" (Roberts, 2009: 140). Some researchers estimate that almost 50 per cent of the different personality traits are genetically determined. The other half is assumed to be formed and molded through early and late childhood (Roberts, 2009). Socialization processes are of extreme importance as parental investment studies (Kaiser and Diewald, 2014) and early intervention programs (Heckman et al, 2006) have empirically assessed. Individuals whose personality development was stimulated during early childhood tend to perform better in later stages of life. This is one of the reasons why children from advantaged social origin tend to be more successful than their counterparts.

One of the most important and mostly employed measures to study the effects of personality traits on socio-economic outcomes has been the Five Factor Model, popularly known as the Big Five[2] (Goldberg, 1990). Table 1 presents an overview of the Big Five model and the six lower level facets that compose each one of the five dimensions (see Costa and McCrae, 1985, 1992).

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[2] The model results from applying factor analysis on all those words in the dictionary describing aspects of personality and is loaded onto five main dimensions: Openness to Experience, Conscientiousness, Extraversion, Agreeableness and Neuroticism (Goldberg, 1990).

Amongst the Big Five, studies have found that Conscientiousness has the highest impact in labor market related outcomes and can be considered an incentive-enhancing trait (Farkas, 2003). It is not only related to overall job performance across occupations (Barrick and Mount, 1991), but also to higher wages (Nyhus and Pons, 2005; Mueller and Plug, 2006; Heineck and Anger, 2010) and occupational sorting (Ham et al, 2009). It also increases job stability and the probability of finding a new job (Uysal and Pohlmeier, 2011).

The second dimension that has often been related to labor market outcomes is Neuroticism. Uysal and Pohlmeier (2011) have found it to increase job instability and reduce the probability of re-employment. It is also negatively related to wages and occupational sorting (Heckman et al, 2006). The reasons behind these findings might be drawn from other studies, where Neuroticism increases absenteeism at work (Störmer and Fahr, 2010). Researchers have also established that high scores on this dimension are linked with a decrease on training proficiency (Barrick and Mount, 1991) and on job search effort (Uysal and Pohlmeier, 2011).

The other three dimensions have less predictive power than Conscientiousness and Neuroticism. Extraversion is related to training proficiency (Barrick and Mount, 1991) and to wages in occupations that require social interaction like managerial, sales, and services (Cattan, 2010). Openness to Experience is related in some cases to wages (Mueller and Plug, 2006) and to gender differentials in the access to certain occupations (Ham et al, 2009; Cobb-Clark and Tan, 2011). Agreeableness has similar effects to Openness (Cobb-Clark and Tan, 2011). Additionally, it reduces work absenteeism (Störmer and Fahr, 2010) and explains gender wage differences (Mueller and Plug, 2006; Nandi and Nicoletti, 2014). Some of these existing differences between men and women might be explained by women's higher scores on Neuroticism and Agreeableness, which in turn are consistent with gender stereotypes (Costa et al, 2001).

Table 1 The Big Five Dimensions and their Facets

Dimension (*Opposite in parenthesis*)	Facets	Definition
Openness to Experience (*Closeness of Experience*)	Ideas, Fantasy, Aesthetics, Actions, Feelings, Values	The degree to which a person needs intellectual stimulation, change, and variety.
Conscientiousness (*Lack of Direction*)	Competence, Order, Achievement striving, Self-Discipline, Deliberation, Dutifulness	The degree to which a person is willing to comply with conventional rules, norms, and standards.
Extraversion (*Introversion*)	Gregariousness, Assertiveness, Activity, Excitement-seeking, Warmth, Positive Emotions	The degree to which a person needs attention and social interaction.
Agreeableness (*Antagonism*)	Trust, Altruism, Compliance, Modesty, Straight-Forwardness, Tender-Mindedness	The degree to which a person needs pleasant and harmonious relations with others.
Neuroticism (*Emotional Stability*)	Anxiety, Angry hostility, Depression, Impulsiveness, Vulnerability, Self-Consciousness	The degree to which a person experiences the world as threatening and beyond his/her control.

Source: Borghans et al (2008)

Personality traits affect labor market outcomes like unemployment incidence through different mechanisms. First they influence them through their incentive-enhancing function (Bowles et al, 2011). Individuals with high scores on these traits are more productive than their counterparts. Conscientiousness represents the best example for this mechanism: conscientious individuals tend to perform better in school and at work (Almlund et al, 2011), earning higher wages (Nyhus and Pons, 2005) and enjoying more stability (Uysal and Pohlmeier, 2011). Emotional Stability, the opposite of Neuroticism, also works in a similar way (Almlund et al, 2011). These individuals tend to keep calm and do well even in stressful situations. As firms prefer highly productive workers, employees with high scores on Conscientiousness and low levels of Neuroticism will enjoy more stability and will face lower risks of becoming unemployed by being dismissed.

The second mechanism through which personality traits affect labor market related outcomes is through their link to preferences. These preferences affect educational and occupational choices (Ham et al, 2009; Cobb-Clark and Tan, 2011) and influence the value of an employment relationship. Employees who score high on Openness to Experience are more likely to resign from their jobs than their counterparts. These individuals might get easily dissatisfied with conventional occupations and are more prone to job hopping (Judge et al, 1999: 625). Economic researchers point towards the relationship between traits and economic preferences.[3] Although this link is far from being clear, some scholars have found that Neuroticism and Agreeableness influence risk aversion positively (Dohmen et al, 2011). Risk aversion could mediate the effect of these dimensions on voluntary job terminations as risk adverse workers are less likely to quit their jobs (Allen et al, 2005). However, the same might not be valid for jobs terminated by means of dismissal. As Diaz-Serrano and O'Neill (2004) suggest, risk-adverse individuals tend to search less intensively for a new job. This usually results in them accepting less secure positions or entering jobs that do not match their qualifications. Following their findings, we can expect highly agreeable and neurotic workers having a higher probability of losing their job by means of dismissal.

Personality traits should, however, not play a role in explaining unemployment incidence in those cases where workers lose their job due to plant closure. As Gibbons and Katz (1991) pointed out, this type of job termination happens because of reasons that are exogenous to workers' ability and performance. Although personality traits play a role in sorting processes (Barrick and Mount, 1991; Ham et al, 2009), plant closures can be assumed to be randomly distributed.

Finally, we should expect to see gender differences in the effects of personality traits (Nyhus and Pons, 2005; Mueller and Plug, 2006). These differences might be due to taste-based

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[3] For a more detailed explanation about the links between personality traits and economic preferences see Almlund et al (2011) and Borghans et al (2008).

discrimination (Nandi and Nicoletti, 2014) or as a deviation from social roles. As stated by Costa et al (2001), differences in personality traits are consistent with gender stereotypes. Women tend to be less emotionally stable and less assertive than men.

Table 2 Hypotheses

Personality trait	Unemployment incidence	Job terminations		
		Plant closure	Quit	Dismissal
Openness to Experience	+	ø	+	ø
Conscientiousness	-	ø	-	-
Extraversion	ø	ø	ø	ø
Agreeableness	ø	ø	ø	ø
Neuroticism	+	ø	ø	+

Notes: "+" and "-" indicate positive/negative relationships, "ø" no relationship.

Data, Measures and Methodology

To investigate the effects of personality traits on unemployment incidence and job terminations I use event history analysis for discrete time data. The reasons for employing these models are several (see Yamaguchi, 1990). First, being fired or leaving a job occurs at discrete time points usually at the middle or at the end of the month. Secondly, discrete-time models are used as approximations to continuous-time models, especially when the time interval is small compared to average durations. In my data, episodes are measured in months. Finally, these models permit the inclusion of time-dependent covariates.

As the dependent variables used in the analyses comprise different outcomes of nominal nature, I employ a competing risks approach. The multinomial logistic model for competing risks assumes that the hazard rate for individual i of outcome k at time t is:

$$h(k,t) = \frac{e^{X_{it}\beta_k}}{1 + \sum_j e^{X_{it}\beta_k}}$$

X_{it} represents a row vector of covariate values for individual i at time t of length p, β is a column vector of p parameter estimates for outcome j, and j takes the value of one of the multiple outcomes of the dependent variable 1,…, K. To capture the hazard correctly, data has to be recorded into a "person-month-file", with time-constant and time-varying variables for each respondent in each month. This model can be specified in the following way:

$$\text{logit}[h(t)] = \log(\frac{h(t)}{[1-h(t)]}) = X_{it}\beta_k,$$

To adapt multinomial logistic models to event history analysis, we need to consider temporal dependence (Box-Steffensmeier and Jones, 2004: 74). I do this by including a series of time dummies, which measure time spent on a job in months (see below).

The data used in this analysis come from the German Socio Economic Panel (SOEP). The SOEP (Wagner et al, 2007) is a national representative longitudinal dataset that gathers yearly data of a random sample in West German households. It started on 1984 and was extended to East German households in 1990. The SOEP is characterized by containing rich information on individual employment histories, as well as on several socio-demographic variables. Additionally, a reduced version of the Big Five taxonomy is available in 2005 and in 2009 (Dehne and Schupp, 2007).

The analyses in this article are limited to the period from 1999 to 2009. The reason is that the wording of some of the most important questions remains constant over these years. The working sample comprises 13.583 employed individuals under working age (20-60 years), who have reported being employed at least once during the studied period and have answered the questions related to personality traits. In person-month format the data comprises 903.559 observations.

Two dependent variables are used for the analyses. The first outcome measures the probability of becoming unemployed. The variable is coded "0" if the interviewee remains employed or the spell is right censored, "1" if he moves out of the labor market, while transitions to unemployment are assigned a "2". The second dependent variable distinguishes between the types of termination that led to unemployment. Again, I control for remaining employed and moves out of the labor market. Job terminations are categorized into quits, dismissals, plant closure, and a residual category that includes other types of terminations (e.g. early retirement, contract exhaustion, mutual agreement, etc).

The personality traits employed in this article are the five dimensions of the Big Five model. These are Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. The SOEP incorporates a short version of the Big Five inventory including 15 of the 240 items of the original inventory. The respondents were asked to respond how they perceived themselves ("*I see myself as someone who...*") on each one of the fifteen questions. They had to specify how much they agree on a 7-point Likert-type scale ranging from 1 ("*does not apply to me at all*") to 7 ("*applies to me perfectly*"). Each dimension is captured by three different items, which are not always ordered in the same direction.

Gerlitz and Schupp (2005) provide a detailed explanation of the pretest procedure and the results of both reliability and validity analyses. The following table presents which items belong to each trait and the Cronbach's alpha resulting from applying factor analysis to the battery of questions. Although the reliability coefficients might seem low, they do not necessary indicate that this short inventory is unreliable (Uysal and Pohlmeier, 2011). Several authors explain that the alpha reliability coefficients increase with the number of items (Mueller and Plug, 2006). Since there are three items per personality trait, these ratios are satisfactory (Dehne and Schupp, 2007) and have been used successfully in other studies (Mueller and Plug, 2006; Heineck and Anger, 2010; Uysal and Pohlmeier, 2011).

Table 3 SOEP questions and personality dimensions

I see myself as someone who...		Dimension (Cronbach Alpha)
is original, comes up with new ideas.	+	Openness to Experience
values artistic experiences.	+	(0.6273)
has an active imagination.	+	
does a thorough job.	+	Conscientiousness
does things effectively and efficiently.	+	(0.6131)
tends to be lazy.	-	
is communicative, talkative.	+	Extraversion
is outgoing, sociable.	+	(0.6536)
is reserved.	-	
is sometimes somewhat rude to others.	-	Agreeableness
has a forgiving nature.	+	(0.5074)
is considerate and kind to others.	+	
worries a lot.	+	Neuroticism
gets nervous easily.	+	(0.5995)
is relaxed, handles stress well.	-	

The measures for the personality traits I employ in this analysis are robust and not affected by reverse causality. First, I regress each of the five dimensions on age and age squared, following the approach suggested by several researchers (Groves, 2005; Nyhus and Pons, 2006; Heineck and Anger, 2010). Secondly, I restrict my sample to individuals between the ages of 20 and 60 who are already employed. The reasons behind these decisions stem from an article that analyzes the stability of the Big Five using the same data I employ. Specht et al (2011) find that some of the Big Five dimensions vary with age. Additionally, they discover that while unemployment does not affect any of the traits, two other labor market outcomes have an effect on the Big Five. The first one is an increase in Conscientiousness for those who enter their first job and a decrease in Conscientiousness for those who retire completely from the labor market (Specht et al, 2011: 870).

To control for the link between personality traits and economic preferences (Almlund et al 2011), I include a variable that captures risk aversion. SOEP respondents were asked to report

their willingness to take risks ("How do you see yourself: Are you generally a person who is fully prepared to take risks or do you try to avoid taking risks?") on an 11 point scale.[4]

Besides the Big Five personality traits and risk aversion, I include a series of demographic indicators in my analysis. A dummy variable controls for gender differences. The dataset also contains a variable differentiating between natives and immigrant individuals, as well as a distinction between respondents born in West or East Germany before 1989. Age is present in its linear and squared form. Education is captured through the 5-point CASMIN scale (Brauns and Steinmann, 1997). Occupation is measured through a reduced version of the EGP schema (Hamplová and Kreidl, 2006). I include dummy variables to control for public and private sector, as well as for the size of the company. Industry is included as a control and differentiates between the primary, secondary sector, and tertiary sector. Finally, to control possible frailty effects of the previous labor market trajectory, I incorporate unemployment experience, as well as both full-time and part-time experience.

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[4] Dohmen et al (2011) have assessed the validity of this measure.

Table 4 Descriptive Statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
Personality Traits					
Openness to Experience	903559	-0.026	1.149	-3.617	2.580
Conscientiousness	903559	0.054	0.849	-4.735	1.482
Extraversion	903559	-0.007	1.109	-3.994	2.260
Agreeableness	903559	-0.015	0.958	-4.400	1.620
Neuroticism	903559	-0.082	1.197	-3.014	3.181
Risk aversion	903559	4.917	2.115	0	10
Demographic Indicators					
Gender (Ref.: Male)	903559	0.479	0.500	0	1
Migrant (Ref.: Native)	903559	0.117	0.321	0	1
West (Ref. East Germany)	903559	0.723	0.448	0	1
Age	903559	41.428	9.998	20	60
Age²	903559	1861.214	821.129	400	3600
Education (Ref.: University Degree)					
Upper Secondary with Occupational Qualifications	903559	0.080	0.272	0	1
Upper Secondary without Occupational Qualifications	903559	0.288	0.167	0	1
Lower Secondary with Occupational Qualifications	903559	0.306	0.461	0	1
Lower Secondary Without Occupational Qualifications or less	903559	0.346	0.476	0	1
Occupation (Ref.: Service Occupations)					
Routine Non-Manual and Routine	903559	0.214	0.411	0	1
Self-Employed and Self-Employed Farmers	903559	0.004	0.068	0	1
Skilled Manual Workers	903559	0.160	0.367	0	1
Semi- and Unskilled Manual Workers	903559	0.133	0.367	0	1
Company Size (Ref.: Less than 200)	903559	0.383	0.486	0	1
Public Sector	903559	0.350	0.477	0	1
Industry (Ref.: Primary and Secondary)	903559	0.615	0.487	0	1
Career Indicators					
Experience Full-Time Employment	903559	190.167	127.220	0	549
Experience Part-Time Employment	903559	30.387	61.575	0	545
Experience Unemployment	903559	4.858	13.934	0	284
Time Dependence Indicators (Ref. 1-12 months)					
13 - 24 months	903559	0.089	0.285	0	1
25 - 36 months	903559	0.072	0.258	0	1
37+ months	903559	0.729	0.445	0	1

Results

Unemployment incidence

Table 5 presents the results from a series of multinomial logistic regression models on the effects of personality traits on unemployment incidence. Model 1 shows that three of the Big Five dimensions affect the odds of becoming unemployment statistically significant. An increase in one standard deviation of Conscientiousness decreases individual's probability of becoming unemployed by 7,3 per cent compared to staying employed or becoming inactive. Neuroticism increases it by 5,9 per cent. These results are in line with those obtained in other studies for different outcomes. Conscientiousness and Emotional Stability[5], being incentive-enhancing traits, strongly predict job performance and productivity (Barrick and Mount, 1991). Firms' inclination towards employees with these traits is reflected on the latter's odds of maintaining their jobs. Quite interestingly, the effects of these traits behave in a similar fashion to Uysal and Pohlmeier's (2011) findings. Unlike them, I find that Openness increases the overall probability of becoming unemployed by 4,9 per cent.

Model 2 tests for gender differences in the effects of personality traits. Of the five dimensions, there is only one significant gender difference. Women with high scores on Neuroticism face a lower risk of becoming unemployed compared to men. This finding does not only show that there are differences amongst gender as already corroborated by Costa et al (2001), but it might point to the existence of gender-stereotypic behavior in the labor market. Male employees displaying women-stereotyped behavior, i.e. not being able to cope with stressful situations and getting worried easily, are being penalized in the labor market by losing their job more easily than those who behave as they are socially expected to.

Models 3 to 6 examine the relationship of risk aversion with the Big Five. Model 3 shows that a one-unit increase in the tendency to assume risks increases the probability of becoming

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[5] Emotional Stability is the positive end of Neuroticism.

Table 5 The effects of personality traits on unemployment incidence

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	Inactivity	Unemployment	Inactivity	Unemployment	Inactivity	Unemployment	Inactivity	Unemployment	Inactivity	Unemployment	Inactivity	Unemployment
Personality traits												
Openness to Experience	1.071**	1.049*	1.090+	1.043					1.068*	1.041+	1.090+	1.038
	(0.028)	(0.024)	(0.051)	(0.033)					(0.028)	(0.024)	(0.051)	(0.033)
Conscientiousness	0.876***	0.927*	0.794***	0.921*					0.875***	0.926*	0.794***	0.921*
	(0.028)	(0.028)	(0.042)	(0.036)					(0.028)	(0.028)	(0.042)	(0.036)
Extraversion	0.996	1.004	1.022	1.032					0.993	0.996	1.022	1.027
	(0.026)	(0.024)	(0.047)	(0.035)					(0.026)	(0.024)	(0.048)	(0.034)
Agreeableness	1.058+	1.043	1.001	1.077+					1.061+	1.050+	1.001	1.080*
	(0.032)	(0.030)	(0.051)	(0.041)					(0.032)	(0.030)	(0.051)	(0.041)
Neuroticism	1.111***	1.059**	1.058	1.136***					1.114***	1.066**	1.058	1.141***
	(0.026)	(0.023)	(0.046)	(0.035)					(0.027)	(0.023)	(0.046)	(0.035)
Risk taking					1.003	1.027*	1.000	1.018	1.012	1.031*	1.000	1.023
					(0.013)	(0.012)	(0.023)	(0.017)	(0.014)	(0.013)	(0.025)	(0.017)
Gender * Openness			0.975	1.012							0.970	1.006
			(0.055)	(0.046)							(0.055)	(0.046)
Gender * Conscientiousness			1.160*	1.021							1.158*	1.021
			(0.076)	(0.060)							(0.076)	(0.060)
Gender * Extraversion			0.964	0.941							0.959	0.936
			(0.053)	(0.045)							(0.054)	(0.045)
Gender * Agreeableness			1.086	0.939							1.092	0.944
			(0.069)	(0.053)							(0.070)	(0.054)
Gender * Neuroticism			1.070	0.870**							1.075	0.874**
			(0.055)	(0.037)							(0.056)	(0.038)
Gender * Risk taking							1.005	1.019			1.018	1.015
							(0.028)	(0.024)			(0.030)	(0.025)
Gender *(ref. male)*	1.974***	0.960	2.022***	0.975	2.100***	1.012	2.050***	0.920	1.990***	0.978	1.862***	0.917
	(0.133)	(0.060)	(0.140)	(0.060)	(0.141)	(0.061)	(0.326)	(0.123)	(0.136)	(0.062)	(0.313)	(0.128)
Constant	0.899	0.035***	0.847	0.036***	0.866	0.028***	0.881	0.029***	0.822	0.028***	0.817	0.030***
	(0.340)	(0.012)	(0.321)	(0.012)	(0.341)	(0.010)	(0.355)	(0.011)	(0.325)	(0.010)	(0.332)	(0.011)
N	903,559	903,559	903,559	903,559	903,559	903,559	903,559	903,559	903,559	903,559	903,559	903,559
Chi²	4330	4330	4361	4361	4242	4242	4252	4252	4370	4370	4410	4410
Adjusted R²	0.0627	0.0627	0.0632	0.0632	0.0614	0.0614	0.0614	0.0614	0.0628	0.0628	0.0633	0.0633

Notes: Robust standard errors in parentheses. The complete model can be found in Appendix 1.

*** p<0.001, ** p<0.01, * p<0.05, + p<0.1

unemployed by 2,7 per cent with respect to remaining employed or exiting the labor market. Model 4 shows that there are no gender differences in the effect of risk aversion on the studies outcomes. Model 5 and Model 6 include the Big Five and interaction between all the personality traits and gender. We observe that, contrary to previous findings, the inclusion of risk aversion seems to reduce the effect of Openness to Experience.

Job terminations

After examining the effects of personality traits on unemployment incidence, I now turn to examine the specific type of job termination that led to it. As derived from Gibbons and Katz' work (1991), job terminations provide potential employers with information about employees' productivity. Building on their work, I list job terminations that led to unemployment into the following categories: *plant closure*, *quits*, *dismissals,[6]* and *other reasons*. Again, I control for moves out of the labor market and the reference category is *remaining employed*.

Table 6 displays six different models, where the different effects of the Big Five and risk aversion on *plant closure*, *quits*, and *dismissals* are presented.[7] Firstly, by separating unemployment incidence into the different causes of job termination, we see that risk aversion only affects the effect of Openness to Experience on resignation, but has no significant impact on any of the different outcomes. This finding might be related to open people engaging in unplanned quitting (Zimmermann, 2008), downplaying the risks attached to such a decision. There are no significant gender effects with risk aversion.

Secondly, by taking into account the different types of job termination that lead to unemployment, we do not only witness changes in the effects of personality traits, we also get a better understanding of the underlying mechanisms. The results of table 5 showed that Openness

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[6] The literature does usually not distinguish between plant closure and dismissals.
[7] For purposes of display, I have omitted moves out of the labor market and terminations based on "other reasons". The complete table can be found on the appendix.

to Experience had a positive effect on unemployment incidence. However, table 6 reveals that this effect is driven by a higher tendency of individuals with high scores on this dimension to resign from their jobs. Openness has no significant impact on the other outcomes. Open people tend to need novelty, variety and complexity and have the intrinsic desire for new experiences. It can be argued that these individuals are likely to resign, if their job is characterized by routine, a boring environment or a low level of autonomy (Judge et al, 1999).

A similar observation can be made for the effect of the other two personality traits that predicted unemployment incidence. Conscientious workers experience lower probabilities of becoming unemployed as they are less likely to be fired or have their contract terminated due to other reasons such as contract exhaustion or early retirement. Conscientious workers' disposition to follow the rules and to exert effort result in higher performance and firms' desires to keep them in their staff. Although the same would be expected from emotionally stable workers, my results reveal that one standard deviation increase in Neuroticism tends to augment the probability of becoming unemployed by almost 17 per cent, because of a firm closing compared to all the other outcomes. This result seems to contradict Gibbons and Katz's (1991) hypothesis. A possible explanation for this finding might be that individuals are informed in advance or get to know in advance that the firm is going to close. A period of job search starts, similarly to those who are unemployed. Less emotionally stable individuals might not be able to cope with the situation of the upcoming job loss and might get stressed and even depressed, being unable to find a job. Another possibility is that these individuals are less efficient in searching for a job (Uysal and Pohlmeier, 2011). The effect of the interaction between gender and neuroticism observed in Table 5 is explained, as expected, through the lower probability of female workers to be dismissed.

Agreeableness, which showed no significant effect on unemployment incidence, influences the probability of being dismissed. This result was not initially expected. However, one possible interpretation can be drawn from previous research. Studies analyzing the impact of the

Table 6 Job terminations (Part 1)

	Model 1			Model 2			Model 3		
	Plant closure	Resignation	Dismissal	Plant closure	Resignation	Dismissal	Plant closure	Resignation	Dismissal
Personality traits									
Openness to Experience	1.000	1.161*	1.027	1.032	1.047	1.034			
	(0.066)	(0.084)	(0.035)	(0.088)	(0.122)	(0.045)			
Conscientiousness	1.070	0.989	0.884**	1.036	1.074	0.914+			
	(0.105)	(0.090)	(0.038)	(0.132)	(0.149)	(0.050)			
Extraversion	0.931	0.851*	1.059	0.905	0.947	1.098*			
	(0.067)	(0.066)	(0.038)	(0.087)	(0.123)	(0.052)			
Agreeableness	1.042	0.860	1.110*	0.984	1.165	1.169**			
	(0.089)	(0.082)	(0.046)	(0.105)	(0.174)	(0.060)			
Neuroticism	1.160*	1.065	1.048	1.280**	1.129	1.118**			
	(0.075)	(0.068)	(0.034)	(0.109)	(0.119)	(0.047)			
Risk taking							1.016	1.056	1.015
							(0.036)	(0.040)	(0.018)
Gender * Openness				0.941	1.163	0.983			
				(0.122)	(0.172)	(0.069)			
Gender * Conscientiousness				1.093	0.888	0.928			
				(0.219)	(0.158)	(0.081)			
Gender * Extraversion				1.052	0.845	0.914			
				(0.154)	(0.135)	(0.066)			
Gender * Agreeableness				1.177	0.621*	0.883			
				(0.210)	(0.118)	(0.076)			
Gender * Neuroticism				0.804+	0.913	0.865*			
				(0.101)	(0.120)	(0.056)			
Gender * Risk taking									
Gender *(ref. male)*	0.694+	1.269	0.873	0.706+	1.174	0.906	0.759	1.304	0.927
	(0.140)	(0.276)	(0.083)	(0.143)	(0.249)	(0.084)	(0.147)	(0.271)	(0.085)
Constant	0.000***	0.001***	0.011***	0.000***	0.001***	0.011***	0.000***	0.001***	0.009***
	(0.000)	(0.001)	(0.006)	(0.000)	(0.001)	(0.006)	(0.000)	(0.001)	(0.005)
N	903,559	903,559	903,559	903,559	903,559	903,559	903,559	903,559	903,559
Chi²	161119	161119	161119	158954	158954	158954	160893	160893	160893
Adjusted R²	0.0685	0.0685	0.0685	0.0694	0.0694	0.0694	0.0669	0.0669	0.0669

Notes: Robust standard errors in parentheses. The complete model can be found in Appendix 2.
*** p<0.001, ** p<0.01, * p<0.05, + p<0.1

Table 6 Job terminations (Part 2)

	Model 4			Model 5			Model 6		
	Plant closure	Resignation	Dismissal	Plant closure	Resignation	Dismissal	Plant closure	Resignation	Dismissal
Personality traits									
Openness to Experience				0.991	1.141+	1.023	1.029	1.026	1.033
				(0.066)	(0.082)	(0.036)	(0.090)	(0.120)	(0.046)
Conscientiousness				1.068	0.987	0.883**	1.036	1.071	0.914+
				(0.105)	(0.090)	(0.038)	(0.132)	(0.149)	(0.050)
Extraversion				0.922	0.836*	1.055	0.903	0.921	1.098*
				(0.067)	(0.064)	(0.038)	(0.088)	(0.118)	(0.052)
Agreeableness				1.049	0.873	1.113*	0.986	1.183	1.170**
				(0.090)	(0.084)	(0.047)	(0.105)	(0.176)	(0.061)
Neuroticism				1.170*	1.082	1.051	1.284**	1.147	1.119**
				(0.076)	(0.071)	(0.034)	(0.109)	(0.125)	(0.047)
Risk taking	0.990	1.085	1.005	1.038	1.067+	1.016	1.014	1.104	1.004
	(0.044)	(0.074)	(0.023)	(0.038)	(0.041)	(0.019)	(0.047)	(0.075)	(0.024)
Gender * Openness							0.927	1.173	0.974
							(0.121)	(0.173)	(0.070)
Gender * Conscientiousness							1.091	0.890	0.927
							(0.219)	(0.159)	(0.081)
Gender * Extraversion							1.036	0.860	0.908
							(0.154)	(0.137)	(0.066)
Gender * Agreeableness							1.194	0.618*	0.889
							(0.214)	(0.118)	(0.077)
Gender * Neuroticism							0.815	0.908	0.871*
							(0.102)	(0.123)	(0.057)
Gender * Risk taking	1.061	0.960	1.023				1.056	0.943	1.027
	(0.075)	(0.078)	(0.037)				(0.076)	(0.077)	(0.039)
Gender *(ref. male)*	0.564	1.632	0.825	0.711+	1.326	0.882	0.546	1.687	0.798
	(0.221)	(0.810)	(0.165)	(0.145)	(0.286)	(0.085)	(0.225)	(0.839)	(0.168)
Constant	0.000***	0.001***	0.009***	0.000***	0.001***	0.009***	0.000***	0.001***	0.010***
	(0.000)	(0.001)	(0.005)	(0.000)	(0.001)	(0.005)	(0.000)	(0.001)	(0.006)
N	903,559	903,559	903,559	903,559	903,559	903,559	903,559	903,559	903,559
Chi²	161009	161009	161009	161927	161927	161927	160001	160001	160001
Adjusted R²	0.0669	0.0669	0.0669	0.0686	0.0686	0.0686	0.0696	0.0696	0.0696

Notes: Robust standard errors in parentheses. The complete model can be found in Appendix 2.
*** p<0.001, ** p<0.01, * p<0.05, + p<0.1

Big Five personality traits on wages have found that Agreeableness influences wages negatively (Nyhus and Pons, 2005), although in most cases it is gender related. "Being nice" is not rewarded in the labor market. Agreeable individuals might subdue their own interests if they can avoid any type of confrontation or conflict (Mueller and Plug, 2006; Heineck and Anger, 2010). This argument is expanded by Nandi and Nicoletti (2014) who suggest that the reverse of agreeableness, antagonism, could influence the bargaining power of the actors. Employees with low levels of agreeableness might be tough negotiators when it comes to defend their interests. Managers could thus prefer to dismiss those employees who will leave silently, over those, who might start legal processes pursuing additional compensation. Additionally, when considering job terminations, we find a gendered effect for Agreeableness. Highly agreeable women tend to display a lower probability of quitting their job than men. Previous studies in labor market research have found a similar gendered effect for agreeableness (Mueller and Plug, 2006; Nandi and Nicoletti, 2014). While the precise mechanism remains unclear, researchers point towards discrimination against gender-atypical behavior. Finally, the results show that extraverted employees are less likely to resign from their jobs. Extravert individuals might think in more positive terms about their work and report higher levels of job satisfaction, thus making them less prone to quit their jobs (Zimmermann, 2008). Additionally, they tend to socialize with other workers in the organization, thus having disincentives to quit (Zimmermann, 2008).[8]

Discussion and conclusions

Analyzing the different mechanisms that lead to unemployment is critical for understanding processes of social inequality. This article has shown that it is crucial to acknowledge the types of job termination that derive in unemployment and that personality traits play a significant role in these processes.

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[8] I have also estimated a model for individuals who expressed not having a prospective job while their job was terminated. There were no significant differences. Results are available on request.

Gibbons and Katz (1991) argued that job terminations contained information about employees' productivity, which is used by prospective employers. Dismissed individuals are signaled as low productive workers. This claim is reflected in my findings. Conscientiousness, the trait that has been linked to overall job performance (Almlund et al, 2011) decreases the probability of being dismissed. Emotional Stability, also a productivity-enhancing trait, reduces the probability of becoming unemployed. But, contrary to my expectations, it does not significantly affect the odds of dismissal, but the risk of becoming unemployed through the firm's closure. This finding contradicts Gibbons and Katz's (1991) assumption. A possible interpretation regarding this result is that plant closures do not occur spontaneously and workers are informed in advance about it. It is however, individual's reaction to it that leads to unemployment. Emotionally stable individuals might start searching for new jobs sooner or are more efficient in their search (Uysal and Pohlmeier, 2011).

Although the productivity mechanism, as reflected by the effects of Conscientiousness and Neuroticism, is able to explain a significant part of the findings, personality traits also affect job terminations and unemployment incidence through its effects on preferences. Certain personality traits – Openness to Experience and Agreeableness – affect the odds of quitting. The higher job satisfaction of agreeable individuals and their tendency to socialize at the workplace, make them less likely to resign. The opposite occurs in the case of open individuals. With the passing of time, they become disillusioned at work, especially if they have to perform routine tasks or enjoy low degrees of autonomy. These individuals might have a higher tendency to unplanned quitting (Zimmermann, 2008), a relationship that might be mediated by a higher tendency to assume risks. The links between traits and economic preferences require further examination.

My results also point towards the existence of discrimination processes within firms. Individuals who do not comply with gender-stereotypic behavior are penalized. Less emotionally stable male employees face higher probabilities of being dismissed, while women do not face any

penalties for displaying high levels of Neuroticism. Additionally, personality traits seem to affect the bargaining setting within firms. Less agreeable workers are better off as they face lower risks of being dismissed. Similar findings have been reported in other studies (Cobb-Clark and Tan, 2011; Nandi and Nicoletti, 2014), but usually for women.

Although the effects of personality traits on the different outcomes are relatively modest, it is important to note that these represent only the direct effects. Several authors have explained that an important part of the effect of personality traits on labor market outcomes occurs through educational and occupational selection (Heckman et al, 2006; Almlund et al, 2011). However, the direct effects show that when you are dismissed, you should probably take it personally.

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Appendix 1 Table 5 The effects of personality traits on unemployment incidence

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	Inactivity	Unemployment	Inactivity	Unemployment	Inactivity	Unemployment	Inactivity	Unemployment	Inactivity	Unemployment	Inactivity	Unemployment
Personality traits												
Openness to Experience	1.071**	1.071**	1.090+	1.043					1.068*	1.041+	1.090+	1.038
	(0.028)	(0.028)	(0.051)	(0.033)					(0.028)	(0.024)	(0.051)	(0.033)
Conscientiousness	0.876***	0.876***	0.794***	0.921*					0.875***	0.926*	0.794***	0.921*
	(0.028)	(0.028)	(0.042)	(0.036)					(0.028)	(0.028)	(0.042)	(0.036)
Extraversion	0.996	0.996	1.022	1.032					0.993	0.996	1.022	1.027
	(0.026)	(0.026)	(0.047)	(0.035)					(0.026)	(0.024)	(0.048)	(0.034)
Agreeableness	1.058+	1.058+	1.001	1.077+					1.061+	1.050+	1.001	1.080*
	(0.032)	(0.032)	(0.051)	(0.041)					(0.032)	(0.030)	(0.051)	(0.041)
Neuroticism	1.111***	1.111***	1.058	1.136***					1.114***	1.066**	1.058	1.141***
	(0.026)	(0.026)	(0.046)	(0.035)					(0.027)	(0.023)	(0.046)	(0.035)
Risk taking					1.003	1.027*	1.000	1.018	1.012	1.031*	1.000	1.023
					(0.013)	(0.012)	(0.023)	(0.017)	(0.014)	(0.013)	(0.025)	(0.017)
Gender * Openness			0.975	1.012							0.970	1.006
			(0.055)	(0.046)							(0.055)	(0.046)
Gender * Conscientiousness			1.160*	1.021							1.158*	1.021
			(0.076)	(0.060)							(0.076)	(0.060)
Gender * Extraversion			0.964	0.941							0.959	0.936
			(0.053)	(0.045)							(0.054)	(0.045)
Gender * Agreeableness			1.086	0.939							1.092	0.944
			(0.069)	(0.053)							(0.070)	(0.054)
Gender * Neuroticism			1.070	0.870**							1.075	0.874**
			(0.055)	(0.037)							(0.056)	(0.038)
Gender * Risk taking							1.005	1.019			1.018	1.015
							(0.028)	(0.024)			(0.030)	(0.025)
Demographic Indicators												
Gender *(ref. male)*	1.974***	0.960	2.022***	0.975	2.100***	1.012	2.050***	0.920	1.990***	0.978	1.862***	0.917
	(0.133)	(0.060)	(0.140)	(0.060)	(0.141)	(0.061)	(0.326)	(0.123)	(0.136)	(0.062)	(0.313)	(0.128)
Age	0.664***	0.874***	0.665***	0.874***	0.663***	0.876***	0.663***	0.876***	0.664***	0.876***	0.666***	0.876***
	(0.013)	(0.015)	(0.013)	(0.015)	(0.013)	(0.015)	(0.013)	(0.015)	(0.013)	(0.015)	(0.013)	(0.015)
Age²	1.005***	1.002***	1.005***	1.002***	1.005***	1.002***	1.005***	1.002***	1.005***	1.002***	1.005***	1.002***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
West Germany *(ref. East)*	1.227**	0.535***	1.224**	0.536***	1.238**	0.538***	1.238**	0.538***	1.230**	0.537***	1.228**	0.538***
	(0.084)	(0.030)	(0.084)	(0.030)	(0.085)	(0.030)	(0.085)	(0.030)	(0.085)	(0.030)	(0.085)	(0.030)
Migrant *(ref. native)*	0.927	1.131+	0.934	1.127	0.921	1.138+	0.921	1.139+	0.926	1.134+	0.933	1.130+
	(0.076)	(0.083)	(0.077)	(0.083)	(0.076)	(0.084)	(0.076)	(0.084)	(0.076)	(0.084)	(0.077)	(0.083)
Educational attainment (ref. College or University)												
Upper secondary with	1.337*	0.804+	1.334*	0.806+	1.328*	0.807+	1.328*	0.806+	1.340*	0.808+	1.336*	0.809+

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
occupational qualifications	(0.156)	(0.098)	(0.155)	(0.098)	(0.154)	(0.098)	(0.154)	(0.098)	(0.156)	(0.098)	(0.156)	(0.098)
Upper secondary without occupational qualifications	1.694***	0.463***	1.711***	0.462***	1.779***	0.478***	1.778***	0.477***	1.699***	0.466***	1.715***	0.464***
	(0.218)	(0.092)	(0.221)	(0.092)	(0.227)	(0.095)	(0.227)	(0.095)	(0.219)	(0.093)	(0.222)	(0.093)
Lower secondary with occupational qualifications	1.088	1.072	1.087	1.074	1.067	1.063	1.067	1.063	1.089	1.075	1.089	1.077
	(0.102)	(0.089)	(0.102)	(0.089)	(0.099)	(0.088)	(0.099)	(0.088)	(0.102)	(0.089)	(0.102)	(0.089)
Lower secondary without occupational qualification or less	1.098	1.235*	1.101	1.230*	1.082	1.234*	1.082	1.234*	1.099	1.239*	1.102	1.234*
	(0.103)	(0.109)	(0.103)	(0.108)	(0.100)	(0.108)	(0.100)	(0.108)	(0.103)	(0.109)	(0.103)	(0.109)
Occupation (ref. Service occupations)												
Routine non-manual and routine	1.435***	1.429***	1.428***	1.425***	1.439***	1.430***	1.439***	1.430***	1.436***	1.434***	1.430***	1.430***
	(0.102)	(0.107)	(0.102)	(0.106)	(0.101)	(0.107)	(0.101)	(0.107)	(0.102)	(0.107)	(0.102)	(0.107)
Self-Employed and self-employed farmers	1.838+	0.333+	1.803+	0.337+	1.866+	0.331+	1.868+	0.332+	1.826+	0.330+	1.794+	0.334+
	(0.624)	(0.194)	(0.614)	(0.196)	(0.634)	(0.192)	(0.635)	(0.193)	(0.620)	(0.192)	(0.611)	(0.195)
Skilled manual workers	1.505***	1.728***	1.511***	1.735***	1.493***	1.722***	1.494***	1.723***	1.507***	1.734***	1.515***	1.741***
	(0.145)	(0.138)	(0.146)	(0.139)	(0.144)	(0.137)	(0.144)	(0.138)	(0.146)	(0.139)	(0.147)	(0.140)
Semi- and unskilled workers	1.733***	1.768***	1.735***	1.775***	1.736***	1.767***	1.735***	1.768***	1.737***	1.778***	1.739***	1.784***
	(0.150)	(0.139)	(0.151)	(0.140)	(0.150)	(0.139)	(0.150)	(0.139)	(0.150)	(0.140)	(0.151)	(0.140)
Company size	1.327***	0.770***	1.324***	0.774***	1.317***	0.767***	1.317***	0.767***	1.326***	0.770***	1.324***	0.774***
	(0.075)	(0.046)	(0.075)	(0.046)	(0.075)	(0.046)	(0.075)	(0.046)	(0.075)	(0.046)	(0.075)	(0.046)
Public company	0.789***	0.535***	0.792***	0.532***	0.799***	0.544***	0.799***	0.543***	0.791***	0.539***	0.794***	0.535***
	(0.051)	(0.038)	(0.051)	(0.037)	(0.051)	(0.038)	(0.051)	(0.038)	(0.051)	(0.038)	(0.051)	(0.038)
Sector *(ref. Primary and secondary)*	1.218**	1.122+	1.208**	1.128*	1.222**	1.122+	1.222**	1.122+	1.216**	1.119+	1.206**	1.124*
	(0.082)	(0.067)	(0.082)	(0.067)	(0.082)	(0.066)	(0.082)	(0.066)	(0.082)	(0.067)	(0.082)	(0.067)
Experience full-time	0.999***	0.998***	0.999***	0.998***	0.998***	0.998***	0.998***	0.998***	0.999***	0.998***	0.999***	0.998***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Experience part-time	0.998**	0.997***	0.998**	0.997***	0.998**	0.997***	0.998**	0.997***	0.998**	0.997***	0.998**	0.997***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Unemployment experience	0.996+	1.011***	0.996+	1.011***	0.997	1.011***	0.997	1.011***	0.996+	1.011***	0.996+	1.011***
	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)
Time periods (ref. 1 – 12 months)												
13 – 24 months	1.595***	2.043***	1.592***	2.048***	1.585***	2.044***	1.585***	2.044***	1.596***	2.045***	1.594***	2.050***
	(0.168)	(0.146)	(0.168)	(0.146)	(0.167)	(0.146)	(0.167)	(0.146)	(0.168)	(0.146)	(0.168)	(0.147)
25 – 36 months	1.466**	1.265**	1.461**	1.269**	1.452**	1.264**	1.452**	1.264**	1.467**	1.267**	1.463**	1.270**
	(0.171)	(0.109)	(0.170)	(0.109)	(0.169)	(0.109)	(0.169)	(0.109)	(0.171)	(0.109)	(0.170)	(0.109)

37 + months	1.402***	0.507***	1.397***	0.510***	1.370**	0.504***	1.370**	0.504***	1.405***	0.509***	1.402***	0.512***
	(0.137)	(0.038)	(0.137)	(0.039)	(0.133)	(0.038)	(0.133)	(0.038)	(0.138)	(0.038)	(0.137)	(0.039)
Constant	0.899	0.035***	0.847	0.036***	0.866	0.028***	0.881	0.029***	0.822	0.028***	0.817	0.030***
	(0.340)	(0.012)	(0.321)	(0.012)	(0.341)	(0.010)	(0.355)	(0.011)	(0.325)	(0.010)	(0.332)	(0.011)
N	903,559	903,559	903,559	903,559	903,559	903,559	903,559	903,559	903,559	903,559	903,559	903,559
Chi²	4330	4330	4361	4361	4242	4242	4252	4252	4370	4370	4410	4410
Adjusted R²	0.0627	0.0627	0.0632	0.0632	0.0614	0.0614	0.0614	0.0614	0.0628	0.0628	0.0633	0.0633

Notes: Robust standard errors in parentheses
*** p<0.001, ** p<0.01, * p<0.05, + p<0.1

Appendix 2 Table 6 Job terminations (Part 1)

	Model 1					Model 2					Model 3				
	Inactivity	Other reasons	Plant closure	Resignation	Dismissal	Inactivity	Other reasons	Plant closure	Resignation	Dismissal	Inactivity	Other reasons	Plant closure	Resignation	Dismissal
Personality traits															
Openness to Experience	1.071**	1.059	1.000	1.161*	1.027	1.090+	1.072	1.032	1.047	1.034					
	(0.028)	(0.040)	(0.066)	(0.084)	(0.035)	(0.051)	(0.063)	(0.088)	(0.122)	(0.045)					
Conscientiousness	0.876***	0.904*	1.070	0.989	0.884**	0.794***	0.827**	1.036	1.074	0.914+					
	(0.028)	(0.045)	(0.105)	(0.090)	(0.038)	(0.042)	(0.057)	(0.132)	(0.149)	(0.050)					
Extraversion	0.996	1.000	0.931	0.851*	1.059	1.022	0.982	0.905	0.947	1.098*					
	(0.026)	(0.038)	(0.067)	(0.066)	(0.038)	(0.047)	(0.057)	(0.087)	(0.123)	(0.052)					
Agreeableness	1.058+	1.015	1.042	0.860	1.110*	1.001	0.974	0.984	1.165	1.169**					
	(0.032)	(0.047)	(0.089)	(0.082)	(0.046)	(0.051)	(0.066)	(0.105)	(0.174)	(0.060)					
Neuroticism	1.111***	1.027	1.160*	1.065	1.048	1.057	1.093	1.280**	1.129	1.118**					
	(0.026)	(0.038)	(0.075)	(0.068)	(0.034)	(0.046)	(0.063)	(0.109)	(0.119)	(0.047)					
Risk taking											1.003	1.037+	1.016	1.056	1.015
											(0.013)	(0.020)	(0.036)	(0.040)	(0.018)
Gender * Openness						0.975	0.980	0.941	1.163	0.983					
						(0.055)	(0.074)	(0.122)	(0.172)	(0.069)					
Gender * Conscientiousness						1.160*	1.196+	1.093	0.888	0.928					
						(0.076)	(0.118)	(0.219)	(0.158)	(0.081)					
Gender * Extraversion						0.964	1.025	1.052	0.845	0.914					
						(0.053)	(0.078)	(0.154)	(0.135)	(0.066)					
Gender * Agreeableness						1.086	1.082	1.177	0.621*	0.883					
						(0.069)	(0.100)	(0.210)	(0.118)	(0.076)					
Gender * Neuroticism						1.070	0.894	0.804+	0.913	0.865*					
						(0.055)	(0.067)	(0.101)	(0.120)	(0.056)					
Gender * Risk taking															
Demographic Indicators															
Gender *(ref. male)*	1.974***	1.107	0.694+	1.269	0.873	2.022***	1.115	0.706+	1.174	0.906	2.100***	1.137	0.759	1.304	0.927
	(0.133)	(0.111)	(0.140)	(0.276)	(0.083)	(0.140)	(0.113)	(0.143)	(0.249)	(0.084)	(0.141)	(0.110)	(0.147)	(0.271)	(0.085)
Age	0.664***	0.815***	1.004	0.890*	0.904***	0.665***	0.814***	1.001	0.890*	0.903***	0.663***	0.817***	1.004	0.891*	0.907***
	(0.013)	(0.023)	(0.060)	(0.051)	(0.024)	(0.013)	(0.023)	(0.060)	(0.051)	(0.024)	(0.013)	(0.023)	(0.060)	(0.051)	(0.025)
Age²	1.005***	1.003***	1.001	1.002*	1.001***	1.005***	1.003***	1.001	1.001*	1.001***	1.005***	1.003***	1.001	1.002*	1.001***
	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)
West Germany *(ref. East)*	1.227**	0.466***	0.638*	1.056	0.494***	1.224**	0.467***	0.636*	1.063	0.495***	1.238**	0.472***	0.628**	1.099	0.494***
	(0.084)	(0.041)	(0.112)	(0.190)	(0.044)	(0.084)	(0.041)	(0.112)	(0.192)	(0.044)	(0.085)	(0.042)	(0.111)	(0.198)	(0.043)
Migrant *(ref. native)*	0.927	0.995	1.501+	0.764	1.319**	0.934	1.004	1.530*	0.734	1.307*	0.921	0.995	1.516*	0.758	1.339**
	(0.076)	(0.130)	(0.311)	(0.186)	(0.139)	(0.077)	(0.132)	(0.318)	(0.181)	(0.138)	(0.076)	(0.130)	(0.312)	(0.185)	(0.141)
Educational attainment *(ref. College or University)*															
Upper secondary with occupational qualifications	1.337*	0.894	0.913	0.591	0.721	1.334*	0.895	0.925	0.588	0.719	1.328*	0.893	0.913	0.603	0.723
	(0.156)	(0.162)	(0.386)	(0.211)	(0.146)	(0.155)	(0.163)	(0.391)	(0.211)	(0.146)	(0.154)	(0.162)	(0.385)	(0.214)	(0.147)
Upper secondary without occupational qualifications	1.694***	0.569*	0.650	0.660	0.081***	1.711***	0.578*	0.648	0.645	0.080***	1.779***	0.585*	0.679	0.713	0.084***
	(0.218)	(0.150)	(0.507)	(0.306)	(0.059)	(0.221)	(0.153)	(0.506)	(0.300)	(0.058)	(0.227)	(0.154)	(0.526)	(0.329)	(0.061)
Lower secondary with occupational qualifications	1.088	0.879	1.591+	0.853	1.213	1.087	0.886	1.597+	0.850	1.209	1.067	0.867	1.623+	0.847	1.195
	(0.102)	(0.115)	(0.431)	(0.221)	(0.161)	(0.102)	(0.116)	(0.433)	(0.220)	(0.160)	(0.099)	(0.113)	(0.440)	(0.215)	(0.158)
Lower secondary without occupational qualification or less	1.098	1.330*	1.734*	0.862	1.200	1.101	1.336*	1.735*	0.853	1.189	1.082	1.317*	1.807*	0.854	1.192
	(0.103)	(0.177)	(0.474)	(0.255)	(0.170)	(0.103)	(0.178)	(0.477)	(0.252)	(0.169)	(0.100)	(0.173)	(0.492)	(0.248)	(0.169)
Occupation *(ref. Service occupations)*															
Routine non-manual and routine	1.435***	1.143	1.631*	3.006***	1.363*	1.429***	1.133	1.618*	3.019***	1.363*	1.439***	1.142	1.650*	2.976***	1.365*
	(0.102)	(0.136)	(0.363)	(0.691)	(0.165)	(0.102)	(0.134)	(0.359)	(0.694)	(0.165)	(0.101)	(0.135)	(0.368)	(0.675)	(0.165)
Self-Employed and self-employed farmers	1.838+	0.950	0.000***	0.000***	0.000***	1.803+	0.976	0.000***	0.000***	0.000***	1.867+	0.947	0.000***	0.000***	0.000***

	(0.624)	(0.559)	(0.000)	(0.000)	(0.000)	(0.614)	(0.575)	(0.000)	(0.000)	(0.000)	(0.634)	(0.554)	(0.000)	(0.000)	(0.000)
Skilled manual workers	1.505***	1.414*	1.446	3.021***	1.800***	1.511***	1.420*	1.439	3.078***	1.812***	1.493***	1.401*	1.497+	3.102***	1.779***
	(0.145)	(0.194)	(0.327)	(0.880)	(0.212)	(0.146)	(0.195)	(0.326)	(0.896)	(0.214)	(0.144)	(0.192)	(0.338)	(0.898)	(0.210)
Semi- and unskilled workers	1.733***	1.383*	1.086	2.399**	2.222***	1.735***	1.391*	1.089	2.395**	2.238***	1.735***	1.381*	1.125	2.401**	2.206***
	(0.150)	(0.177)	(0.267)	(0.668)	(0.261)	(0.151)	(0.178)	(0.267)	(0.664)	(0.263)	(0.150)	(0.177)	(0.276)	(0.663)	(0.260)
Company size	1.327***	1.257*	0.509***	0.789	0.490***	1.324***	1.256*	0.511***	0.790	0.494***	1.317***	1.256*	0.500***	0.771	0.491***
	(0.075)	(0.114)	(0.099)	(0.147)	(0.050)	(0.075)	(0.114)	(0.100)	(0.146)	(0.051)	(0.075)	(0.114)	(0.098)	(0.142)	(0.050)
Public company	0.789***	1.032	0.215***	0.343***	0.288***	0.792***	1.034	0.215***	0.341***	0.284***	0.799***	1.053	0.216***	0.353***	0.292***
	(0.051)	(0.104)	(0.060)	(0.077)	(0.039)	(0.051)	(0.104)	(0.060)	(0.077)	(0.039)	(0.051)	(0.105)	(0.060)	(0.079)	(0.040)
Sector (ref. Primary and secondary)	1.218**	1.406**	1.084	1.793**	0.885	1.208**	1.414**	1.088	1.810**	0.893	1.222**	1.399**	1.087	1.745**	0.893
	(0.082)	(0.149)	(0.199)	(0.346)	(0.077)	(0.082)	(0.151)	(0.203)	(0.348)	(0.078)	(0.082)	(0.148)	(0.199)	(0.336)	(0.078)
Experience full-time	0.999***	0.998**	0.998*	0.998	0.999	0.999***	0.998**	0.997*	0.998	0.999	0.998***	0.998**	0.998*	0.998	0.999
	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
Experience part-time	0.998**	0.996***	0.997+	1.000	0.997***	0.998**	0.996***	0.997+	1.001	0.997***	0.998**	0.996***	0.997+	1.000	0.997***
	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)
Unemployment experience	0.996+	1.014***	1.005+	1.006**	1.011***	0.996+	1.014***	1.005+	1.007**	1.011***	0.997	1.014***	1.005+	1.006**	1.011***
	(0.002)	(0.001)	(0.003)	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.002)	(0.001)
Time periods *(ref. 1 – 12 months)*															
13 – 24 months	1.595***	1.838***	2.055**	2.416***	2.138***	1.592***	1.837***	2.062**	2.424***	2.147***	1.585***	1.839***	2.060**	2.422***	2.136***
	(0.168)	(0.195)	(0.569)	(0.541)	(0.242)	(0.168)	(0.195)	(0.570)	(0.543)	(0.243)	(0.167)	(0.195)	(0.570)	(0.542)	(0.242)
25 – 36 months	1.466**	1.032	1.905*	1.372	1.372*	1.461**	1.031	1.914*	1.379	1.377*	1.451**	1.031	1.909*	1.374	1.370*
	(0.171)	(0.137)	(0.564)	(0.375)	(0.184)	(0.170)	(0.137)	(0.566)	(0.377)	(0.185)	(0.169)	(0.137)	(0.564)	(0.376)	(0.184)
37 + months	1.402***	0.255***	0.997	0.563*	0.707**	1.397***	0.255***	1.000	0.572*	0.713**	1.369**	0.255***	0.986	0.561*	0.701**
	(0.137)	(0.033)	(0.242)	(0.136)	(0.137)	(0.137)	(0.033)	(0.242)	(0.139)	(0.137)	(0.133)	(0.033)	(0.239)	(0.136)	(0.080)
Constant	0.900	0.044***	0.000***	0.001***	0.011***	0.847	0.044***	0.000***	0.001***	0.011***	0.867	0.033***	0.000***	0.001***	0.009***
	(0.340)	(0.025)	(0.000)	(0.001)	(0.006)	(0.321)	(0.024)	(0.000)	(0.001)	(0.006)	(0.341)	(0.019)	(0.000)	(0.001)	(0.005)
N	903,559	903,559	903,559	903,559	903,559	903,559	903,559	903,559	903,559	903,559	903,559	903,559	903,559	903,559	903,559
Chi²	161119	161119	161119	161119	161119	158954	158954	158954	158954	158954	160893	160893	160893	160893	160893
Adjusted R²	0.0685	0.0685	0.0685	0.0685	0.0685	0.0694	0.0694	0.0694	0.0694	0.0694	0.0669	0.0669	0.0669	0.0669	0.0669

Notes: Robust standard errors in parentheses
*** p<0.001, ** p<0.01, * p<0.05, + p<0.1

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Appendix 2 Table 6 Job terminations (Part 2)

	Model 4					Model 5					Model 6				
	Inactivity	Other reasons	Plant closure	Resignation	Dismissal	Inactivity	Other reasons	Plant closure	Resignation	Dismissal	Inactivity	Other reasons	Plant closure	Resignation	Dismissal
Personality traits															
Openness to Experience						1.068*	1.048	0.991	1.141+	1.023	1.090+	1.061	1.029	1.026	1.033
						(0.028)	(0.040)	(0.066)	(0.082)	(0.036)	(0.051)	(0.063)	(0.090)	(0.120)	(0.046)
Conscientiousness						0.875***	0.904*	1.068	0.987	0.883**	0.794***	0.826**	1.036	1.071	0.914+
						(0.028)	(0.042)	(0.105)	(0.090)	(0.038)	(0.057)	(0.066)	(0.132)	(0.149)	(0.050)
Extraversion						0.993	0.989	0.922	0.836*	1.055	1.022	0.971	0.903	0.921	1.098*
						(0.026)	(0.038)	(0.067)	(0.064)	(0.038)	(0.048)	(0.056)	(0.088)	(0.118)	(0.052)
Agreeableness						1.061+	1.023	1.049	0.873	1.113*	1.001	0.981	0.986	1.183	1.170**
						(0.032)	(0.047)	(0.090)	(0.084)	(0.047)	(0.051)	(0.066)	(0.105)	(0.176)	(0.061)
Neuroticism						1.114***	1.037	1.170*	1.082	1.051	1.058	1.103+	1.284**	1.147	1.119**
						(0.027)	(0.039)	(0.076)	(0.071)	(0.034)	(0.046)	(0.064)	(0.109)	(0.125)	(0.047)
Risk taking	1.000	1.036	0.990	1.085	1.005	1.012	1.039+	1.038	1.067+	1.016	1.000	1.044	1.014	1.104	1.004
	(0.023)	(0.032)	(0.044)	(0.074)	(0.023)	(0.014)	(0.021)	(0.038)	(0.041)	(0.019)	(0.025)	(0.033)	(0.047)	(0.075)	(0.024)
Gender * Openness											0.970	0.980	0.927	1.173	0.974
											(0.055)	(0.074)	(0.121)	(0.173)	(0.070)
Gender * Conscientiousness											1.158*	1.199+	1.091	0.890	0.927
											(0.076)	(0.118)	(0.219)	(0.159)	(0.081)
Gender * Extraversion											0.959	1.027	1.036	0.860	0.908
											(0.054)	(0.079)	(0.154)	(0.137)	(0.066)
Gender * Agreeableness											1.092	1.084	1.194	0.618*	0.889
											(0.070)	(0.101)	(0.214)	(0.118)	(0.077)
Gender * Neuroticism											1.075	0.894	0.815	0.908	0.871*
											(0.056)	(0.067)	(0.102)	(0.123)	(0.057)
Gender * Risk taking	1.005	1.003	1.061	0.960	1.023						1.018	0.991	1.056	0.943	1.027
	(0.028)	(0.039)	(0.075)	(0.078)	(0.037)						(0.030)	(0.040)	(0.076)	(0.077)	(0.039)
Demographic Indicators															
Gender *(ref. male)*	2.050***	1.122	0.564	1.632	0.825	1.990***	1.130	0.711+	1.326	0.882	1.862***	1.192	0.546	1.687	0.798
	(0.326)	(0.258)	(0.221)	(0.810)	(0.165)	(0.136)	(0.114)	(0.145)	(0.286)	(0.085)	(0.313)	(0.286)	(0.225)	(0.839)	(0.168)
Age	0.663***	0.817***	1.005	0.891*	0.907***	0.664***	0.817***	1.008	0.895+	0.905***	0.666***	0.817***	1.006	0.895+	0.904***
	(0.013)	(0.023)	(0.060)	(0.051)	(0.024)	(0.013)	(0.023)	(0.061)	(0.051)	(0.024)	(0.013)	(0.023)	(0.061)	(0.051)	(0.024)
Age²	1.005***	1.003***	1.001	1.002*	1.001***	1.005***	1.003***	1.001	1.001*	1.001***	1.005***	1.003***	1.001	1.001*	1.001***
	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)
West Germany *(ref. East)*	1.238**	0.472***	0.631**	1.095	0.495***	1.230**	0.468***	0.639**	1.067	0.495***	1.228**	0.469***	0.642*	1.067	0.497***
	(0.085)	(0.042)	(0.112)	(0.197)	(0.044)	(0.085)	(0.041)	(0.112)	(0.192)	(0.044)	(0.085)	(0.041)	(0.113)	(0.192)	(0.044)
Migrant *(ref. native)*	0.921	0.995	1.515*	0.758	1.340**	0.926	0.995	1.507*	0.768	1.321**	0.932	1.005	1.535*	0.738	1.311*
	(0.076)	(0.130)	(0.312)	(0.185)	(0.141)	(0.076)	(0.131)	(0.312)	(0.187)	(0.140)	(0.077)	(0.132)	(0.318)	(0.182)	(0.138)
Educational attainment (ref. College or University)															
Upper secondary with occupational qualifications	1.328*	0.893	0.911	0.602	0.723	1.340*	0.897	0.920	0.595	0.723	1.336*	0.898	0.930	0.591	0.721
	(0.154)	(0.162)	(0.384)	(0.214)	(0.147)	(0.156)	(0.163)	(0.388)	(0.213)	(0.147)	(0.156)	(0.163)	(0.392)	(0.213)	(0.146)
Upper secondary without occupational qualifications	1.778***	0.585*	0.674	0.714	0.083***	1.699***	0.572*	0.658	0.668	0.082***	1.715***	0.582*	0.653	0.655	0.080***
	(0.227)	(0.154)	(0.522)	(0.329)	(0.060)	(0.219)	(0.151)	(0.513)	(0.310)	(0.059)	(0.222)	(0.154)	(0.509)	(0.304)	(0.058)
Lower secondary with occupational qualifications	1.067	0.867	1.627+	0.845	1.195	1.089	0.881	1.597+	0.859	1.215	1.089	0.888	1.606+	0.855	1.210
	(0.099)	(0.113)	(0.441)	(0.215)	(0.158)	(0.102)	(0.115)	(0.432)	(0.222)	(0.161)	(0.102)	(0.116)	(0.435)	(0.221)	(0.160)
Lower secondary without occupational qualification or less	1.082	1.317*	1.810*	0.852	1.191	1.099	1.333*	1.746*	0.868	1.202	1.102	1.339*	1.749*	0.860	1.190
	(0.100)	(0.173)	(0.493)	(0.248)	(0.169)	(0.103)	(0.177)	(0.476)	(0.255)	(0.170)	(0.103)	(0.178)	(0.479)	(0.254)	(0.169)
Occupation (ref. Service occupations)															
Routine non-manual and routine	1.439***	1.142	1.651*	2.972***	1.366**	1.436***	1.146	1.641*	3.019***	1.366**	1.430***	1.135	1.630*	3.023***	1.367**
	(0.101)	(0.135)	(0.367)	(0.674)	(0.165)	(0.102)	(0.136)	(0.366)	(0.691)	(0.165)	(0.102)	(0.135)	(0.362)	(0.691)	(0.165)

Self-Employed and self-employed farmers	1.868+	0.947	0.000***	0.000***	0.000***	1.827+	0.940	0.000***	0.000***	0.000***	1.795+	0.962	0.000***	0.000***	0.000***
	(0.635)	(0.554)	(0.000)	(0.000)	(0.000)	(0.620)	(0.552)	(0.000)	(0.000)	(0.000)	(0.611)	(0.565)	(0.000)	(0.000)	(0.000)
Skilled manual workers	1.494***	1.401*	1.496+	3.097***	1.780***	1.507***	1.413*	1.458+	3.035***	1.805***	1.515***	1.419*	1.452+	3.073***	1.818***
	(0.144)	(0.192)	(0.338)	(0.897)	(0.210)	(0.146)	(0.194)	(0.330)	(0.882)	(0.213)	(0.147)	(0.195)	(0.329)	(0.893)	(0.215)
Semi- and unskilled workers	1.735***	1.381*	1.125	2.403**	2.208***	1.737***	1.392**	1.095	2.416**	2.229***	1.739***	1.401**	1.099	2.410**	2.246***
	(0.150)	(0.177)	(0.276)	(0.664)	(0.260)	(0.150)	(0.178)	(0.270)	(0.671)	(0.262)	(0.151)	(0.179)	(0.270)	(0.667)	(0.265)
Company size	1.317***	1.256*	0.501***	0.772	0.491***	1.326***	1.260*	0.509***	0.789	0.490***	1.324***	1.258*	0.512***	0.791	0.494***
	(0.075)	(0.114)	(0.098)	(0.142)	(0.050)	(0.075)	(0.114)	(0.099)	(0.147)	(0.050)	(0.075)	(0.114)	(0.100)	(0.147)	(0.051)
Public company	0.799***	1.053	0.215***	0.353***	0.291***	0.791***	1.040	0.217***	0.348***	0.289***	0.794***	1.043	0.216***	0.345***	0.285***
	(0.051)	(0.105)	(0.060)	(0.079)	(0.040)	(0.051)	(0.105)	(0.060)	(0.078)	(0.039)	(0.051)	(0.105)	(0.060)	(0.078)	(0.039)
Sector (ref. Primary and secondary)	1.222**	1.399**	1.087	1.744**	0.893	1.216**	1.400**	1.080	1.781**	0.884	1.206**	1.407**	1.084	1.799**	0.890
	(0.082)	(0.148)	(0.200)	(0.335)	(0.078)	(0.082)	(0.149)	(0.199)	(0.344)	(0.077)	(0.082)	(0.150)	(0.203)	(0.345)	(0.078)
Experience full-time	0.998***	0.998**	0.998*	0.998	0.999	0.999***	0.998**	0.997*	0.998	0.999	0.999***	0.998**	0.997*	0.998	0.999
	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
Experience part-time	0.998**	0.996***	0.997+	1.000	0.997**	0.998**	0.996***	0.997+	1.001	0.997**	0.998**	0.996***	0.997+	1.001	0.997**
	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)
Unemployment experience	0.997	1.014***	1.005+	1.006**	1.011***	0.996+	1.014***	1.005+	1.006**	1.010***	0.996+	1.014***	1.004	1.006**	1.010***
	(0.002)	(0.001)	(0.003)	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.002)	(0.001)	(0.002)	(0.001)	(0.003)	(0.002)	(0.001)

Time periods
(ref. 1 – 12 months)

13 – 24 months	1.585***	1.839***	2.061**	2.421***	2.136***	1.596***	1.840***	2.058**	2.426***	2.139***	1.594***	1.839***	2.066**	2.431***	2.148***
	(0.167)	(0.195)	(0.571)	(0.542)	(0.242)	(0.168)	(0.195)	(0.570)	(0.543)	(0.242)	(0.168)	(0.195)	(0.571)	(0.545)	(0.244)
25 – 36 months	1.452**	1.031	1.911*	1.373	1.371*	1.467**	1.033	1.908*	1.379	1.372*	1.463**	1.032	1.920*	1.385	1.378*
	(0.169)	(0.137)	(0.565)	(0.376)	(0.184)	(0.171)	(0.138)	(0.565)	(0.377)	(0.184)	(0.170)	(0.138)	(0.568)	(0.379)	(0.185)
37 + months	1.370**	0.255***	0.988	0.561*	0.702**	1.405**	0.256***	1.001	0.568*	0.708**	1.401**	0.255***	1.006	0.576**	0.714**
	(0.133)	(0.033)	(0.240)	(0.136)	(0.080)	(0.138)	(0.033)	(0.243)	(0.138)	(0.080)	(0.137)	(0.033)	(0.244)	(0.140)	(0.081)
Constant	0.881	0.034***	0.000***	0.001***	0.009***	0.822	0.033***	0.000***	0.001***	0.009***	0.818	0.032***	0.000***	0.001***	0.010***
	(0.355)	(0.019)	(0.000)	(0.001)	(0.005)	(0.326)	(0.019)	(0.000)	(0.001)	(0.005)	(0.332)	(0.019)	(0.000)	(0.001)	(0.006)
N	903,559	903,559	903,559	903,559	903,559	903,559	903,559	903,559	903,559	903,559	903,559	903,559	903,559	903,559	903,559
Chi²	161009	161009	161009	161009	161009	161927	161927	161927	161927	161927	160001	160001	160001	160001	160001
Adjusted R²	0.0669	0.0669	0.0669	0.0669	0.0669	0.0686	0.0686	0.0686	0.0686	0.0686	0.0696	0.0696	0.0696	0.0696	0.0696

Notes: Robust standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05, + p<0.1

Getting Ahead: the Effects of Personality Traits on Job Mobility

Abstract

Personality traits have been shown to affect different labor market outcomes. By using data from the German Socio-Economic Panel (SOEP) I examine how the Big Five personality traits affect different types of job mobility. My results indicate that there are substantive direct relations between personality traits and job mobility. While Openness to Experience is related to almost each type of job mobility, Conscientiousness increases the probability of experiencing upward mobility. Extraversion and Neuroticism influence horizontal mobility. In line with previous research, Agreeableness does not affect any type of moves. These findings show that personality traits contribute to explain job mobility even after controlling for education and occupation.

Introduction

Since the mid-1970s deep socio-economic transformations have gradually altered labor market relations. Globalization, technological change, and the transition towards a service economy have all been considered major explanatory factors of those changes. One of the main consequences of these transformations has been the erosion of long-term employment relationships and the de-standardization of occupational careers (Struck et al, 2007). As a consequence, individuals have become more exposed to unstable careers involving multiple employer changes and work interruptions (Fuller, 2008).

Notwithstanding the existence of a vast literature on this topic (see Blossfeld et al, 2006), researchers have not adequately addressed two important issues that are likely to have a relevant impact on job mobility processes. Firstly, a considerable part of the variance in job mobility remains largely unexplained. This has been attributed to unobservable differences among workers in both individual preferences and aptitudes (Fuller, 2008). Secondly, significant variation within narrowly defined occupational groups exists that accounts for differences in labor market outcomes (Juhn et al, 1993; Lemieux, 2006). These differences have been related to

productivity differentials. A promising way to address these shortcomings in the literature is through the inclusion of personality traits.

Economic and sociological research have shown that personality traits account for important differences in wages (Nyhus and Pons, 2005; Mueller and Plug, 2006; Heineck and Anger, 2010), occupational sorting (Ham et al, 2009), and unemployment incidence and duration (Uysal and Pohlmeier, 2011; Guijarro Usobiaga, 2014). However, sociological research on the influence of these traits on labor market mobility has been scant, with a few exceptions (Gelissen and de Graaf, 2006; Jackson, 2006).[9] Thus, in this article I address the need of examining how personality traits affect job mobility processes.

For this purpose, I use data from the German Socio-Economic Panel (SOEP) to show how the Big Five Inventory (BFI) of personality traits affects job mobility in Germany. Following existing research on this topic, I argue that personality traits can affect job mobility processes through two mechanisms. First, personality traits can affect vertical mobility by affecting individual's productivity. This mechanism is supported by research showing that traits like Conscientiousness and Neuroticism are productivity-enhancing, affecting overall job performance (Barrick and Mount, 1991). Other scholars claim that some personality traits are linked to divergent reactions to incentive structures set up by employers to raise workers' endogenous efforts and productivity (Bowles et al, 2001; Farkas, 2003). Thus, individuals with these traits will have higher chances to experience upward mobility.

Second, personality traits can also affect job mobility by shaping individual's preferences. The latter can be taste-based, reflected in educational and occupational decisions (Mueller and Plug, 2006; Nandi and Nicoletti, 2014) or of economic nature like risk aversion, discount rates, and social and leisure preferences (Borghans et al, 2008; Almlund et al, 2011). Preferences might

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[9] There is a large amount of research on this topic done by vocational psychologists (see e.g. Judge et al, 1999; Boudreau et al, 2001; Seibert and Kraimer, 2001; Feldmann and Ng, 2007).

additionally affect an individual's' view of its current position, how it values changing jobs, and how it assesses the costs and risks implied in these processes.

This article is divided in five sections. In the first section, I briefly review existing sociological studies on job mobility. Then, I proceed to define personality traits and explain how they can be integrated into existing theoretical models of job mobility. In the third section, I introduce the methods, the data, and the variables used in the analyses. Finally, I discuss the empirical findings and conclude.

Existing studies on job mobility

The study of job mobility has received much attention in sociological studies. Scholars have analyzed different mechanisms and factors that affect job mobility. For example, Le Grand and Tahlin (2002) analyzed how different types of job moves were related to earnings. Other scholars like Fuller focused on how previous occupational changes affect future job mobility (Fuller, 2008). According to the author, workers who perform well do not have incentives to change employers, while the benefits of changing firms are conditioned by the quality of previous moves. Similarly, Blossfeld et al's (2006) comparative analysis of various countries, examined the effects of globalization on men's mid careers. Their results evidenced the pivotal role that education plays in securing workers against diverse occupational hazards risks and in increasing promotion and re-employment opportunities. Also, they showed that national institutions like the welfare regime or the employment relations system filter and moderate exogenous changes in occupational careers.

Scholars have also analyzed the particularities of country-specific job mobility trends. In a study on Germany's labor market, Kurz and her colleagues (2006) argue that the careers of mid-age male workers remain as stable as those of previous cohorts. Their results even show an

increase in upward mobility as compared to previous cohorts. However, other scholars have confronted some of these results. Diewald and Sill (2004) have shown a decrease of job stability and an increase in interemployer mobility. Other scholars (Bergemann and Mertens, 2011; Struck et al, 2007) have also found a similar pattern. Giesecke and Heisig (2009) partly contradict the upward mobility finding of Kurz et al (2006). They argue that within-firm upward mobility has decreased. However, these studies have not taken into account unobservable differences in individual's productivities and preferences (Fuller, 2008).

Sociological studies that have used personality traits as a way to approach these differences in productivity and preferences are scant. To my knowledge, only Jackson (2006) and Gelissen and de Graaf (2006) have done it. Jackson (2006) examines how two personality traits measured at age seven, aggression and withdrawal, affect the probability of entering different types of occupations. Gelissen and de Graaf (2006) employ Dutch data to show how the BFI influence earnings and job mobility. Their results indicate that Extraversion increases the likelihood of experience both upward and downward moves. Additionally, they find gender differences in the effects of personality traits. Conscientious women have a lower probability of being promoted, while Extraversion increases their risk of demotion. But what exactly are personality traits and why should sociologists take them into consideration?

Personality traits and job mobility

Personality traits can be described as "the relatively enduring patterns of thoughts, feelings, and behaviors that reflect the tendency to respond in certain ways under certain circumstances" (Roberts, 2009: 140). These traits are the result of genetic inheritance and of socialization processes. Although personality traits are malleable at early years, they have been shown to be relatively stable during adulthood (Almlund et al, 2011).

While several measures of personality traits exists, the Big Five Inventory stands out as the most comprehensive and widely used by economists and sociologists (Mueller and Plug, 2006). As its name indicates, five dimensions compose this taxonomy: Openness to Experience, Conscientiousness, Extroversion, Agreeableness and Neuroticism (Goldberg, 1990).[10] Table 1 presents the Big Five model and the 30 lower level facets that compose each of the five dimensions.[11]

Table 1 The Big Five Dimensions and their Facets

Dimension (Opposite in parenthesis)	Facets	Definition
Openness to Experience (Closeness of Experience)	Ideas, Fantasy, Aesthetics, Actions, Feelings, Values	The degree to which a person needs intellectual stimulation, change, and variety.
Conscientiousness (Lack of Direction)	Competence, Order, Achievement striving, Self-Discipline, Deliberation, Dutifulness	The degree to which a person is willing to comply with conventional rules, norms, and standards.
Extraversion (Introversion)	Gregariousness, Assertiveness, Activity, Excitement-seeking, Warmth, Positive Emotions	The degree to which a person needs attention and social interaction.
Agreeableness (Antagonism)	Trust, Altruism, Compliance, Modesty, Straight-Forwardness, Tender-Mindedness	The degree to which a person needs pleasant and harmonious relations with others.
Neuroticism (Emotional Stability)	Anxiety, Angry hostility, Depression, Impulsiveness, Vulnerability, Self-Consciousness	The degree to which a person experiences the world as threatening and beyond his/her control.

Source: Borghans et al (2008)

Openness to Experience defines individuals who require intellectual stimulation, are curious, creative, and culturally oriented. This dimension has been found to increase training proficiency

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[10] The model has been criticized to be atheoretical, yet the personality measures have been shown to measure what they are supposed to (Boyce, 2009).
[11] For a more detailed explanation of the Big Five see Costa and McCrae (1985, 1992).

(Barrick and Mount, 1991) and wages (Mueller and Plug, 2006; Heineck and Anger, 2010, Nandi and Nicoletti, 2014). The effects of Openness vary between men and women. For instance, Openness to Experience improves women's probability of becoming a manager (Cobb-Clark and Tan, 2011). In a different study, this dimension has been found to influence men's probability of entering a white collar occupation (Ham, Junakar and Wells, 2009). Störmer and Fahr (2010) observe that this dimension is also correlated with female absenteeism at work. This is in line with previous findings from studies analyzing class attendance, which shows that Openness affects attendance and the selection of courses depending on their difficulty (Almlund et al, 2011).

The second dimension, Conscientiousness, is the trait that best predicts educational and occupational attainment and success (Almlund et al, 2011). Conscientiousness is related to an individual's disposition to work hard, be organized, responsible, and self-disciplined. High scores on this dimension indicate a strong need for achievement, order, and perseverance (Costa et al, 1992). Research has shown that Conscientiousness is strongly related to overall performance in the labor market (Barrick and Mount, 1991; Salgado, 1997), yet its predictive power is lower when compared to that of measures of intelligence like IQ (Almlund et al, 2011). However, while IQ increases with job complexity (Schmidt and Hunter, 2004), Conscientiousness remains stable across the spectrum of occupations (Barrick and Mount, 1991). Several studies have found this trait to be linked to higher productivity, higher wages (Nyhus and Pons, 2005; Mueller and Plug, 2006; Heineck and Anger, 2010), and to occupational sorting (Barrick and Mount, 1991; Ham, Junkar and Wells, 2009).

Neuroticism is almost as important as Conscientiousness in determining socio-economic success. It measures the degree of individual insecurity, anxiousness, depression, and emotionality, as well as its counterparts: calm, self-confidence, and coolness (Salgado, 1997). This trait captures the way in which people react to certain events. Some facets of this dimension, like

locus of control and self-confidence, determine several labor market outcomes including wages, occupational sorting (Heckman, Stixrud, and Urzua, 2006), absenteeism (Störmer and Fahr, 2010), and job search effort (Caliendo, Cobb-Clark, and Uhlendorff, 2010). Moreover, higher scores on the positive pole of Neuroticism, Emotional Stability, reduce the number of days missed at work (Störmer and Fahr, 2010).

The fourth dimension is Extraversion, which defines an individual's sociability. This trait not only measures the degree to which individuals "are socially oriented (outgoing and gregarious), but are also urging (dominant and ambitious) and active (adventuresome and assertive)" (Judge et al, 1999: 624). Highly extraverted individuals are likely to assume leadership positions and to possess extensive social networks and acquaintances (Heineck and Anger, 2010). This dimension is also related to training proficiency (Barrick and Mount, 1991) and to remuneration in managerial positions or in occupations that require social interaction like sales and services (Cattan, 2010).

Finally, Agreeableness measures the extent to which individuals are cooperative and agreeable. While it is often assumed that being cooperative can be positive in certain strata of the labor market (Judge et al, 1999), it might have negative effects in certain occupations. Cobb-Clark and Tan (2011) find that Agreeableness is negatively related to entering managerial and business professional occupations in the case of men. Agreeableness also reduces absenteeism at work for men (Störmer and Fahr, 2010). This dimension has also been found to account for earning differences between men and women (Mueller and Plug, 2006; Nandi and Nicoletti, 2014).

While personality traits have become increasingly relevant in sociological studies, the ways in which explanations based on these traits can be integrated into the main sociologic and economic theories of job mobility like human capital and economic models remain an open question. Nevertheless, a few options can be devised on how to successfully achieve this.

The human capital approach (Becker, 1962) argues that success in the labor market is explained by differences in productivity levels, which in turn result from investments in human capital, mainly education and on-the-job training. Therefore, these models part from the idea that mobility processes are the result of human capital acquisition processes. Finally, these models also assume that schooling and on-the-job training are substitutes for abilities.

However, these claims have been contested by empirical research, which has shown that cognitive skills and personality traits are also a form of human capital that affects socio-economic outcomes beyond the influence of education (Heckman and Rubinstein, 2001; Farkas, 2003; Carneiro and Heckman, 2003). For instance, it has been shown that certain personality traits like Openness to Experience and Extraversion facilitate the acquisition of posterior human capital, by increasing training proficiency (Barrick and Mount, 1991). Human capital models assume that the more human capital endowments an individual possesses, the more likely he is to be promoted or move into better jobs (Becker, 1962). Consequently, personality traits that contribute to increase individual's productivity are likely to affect job mobility.

Certain personality traits have been considered as being productivity-enhancing (Bowles et al, 2001; Farkas, 2003). Conscientiousness e.g. is expected to influence upward mobility (Tharenou, 1997; Judge et al, 1999). Besides its relationship to higher performance at work (Barrick and Mount, 1991; Salgado, 1997), conscientious individuals are "associated with dutifulness, responsibility, and dependability" (Feldmann and Ng, 2007: 362), characteristics that are valued by employers (Farkas, 2003). Additionally, conscientious workers are achievement-oriented, which increases their probability of being promoted (Judge et al, 1999; Gelissen and de Graaf, 2006). The opposite is expected from Neuroticism. Less emotionally stable individuals are not considered to be the best candidates for promotions (Ng et al, 2005), as they tend to reflect instable behavior, suffering from anxiety and depression (Judge et al, 1999). Neuroticism has also been related with lower job performance (Salgado, 1997), and higher rates of absenteeism

(Störmer and Fahr, 2010). Following this evidence, I expect Conscientiousness to increase the probability of moving upwards. In a similar way, higher scores on Neuroticism are going to reduce an individual's chances of being promoted.

Although human capital models are useful to explain patterns of job attainment over time (Tuma, 1985; Rosenfeld, 1992), they are not well suited for explaining mobility processes between firms (Hacket, 2009). Matching approaches provide a better alternative. These models derive from job searching and labor turnover approaches and assume that matches in the labor market are closed under incomplete information (Gangl, 2003). Employers and workers enter employment relationships with a limited amount of information over their counterparts. As time passes, both parts acquire more information about the quality of the match they have agreed upon (Jovanovic, 1979). If there is a mismatch between one of the parts' initial expectations and the reality they experience, the employment relationship is likely to be put to an end. Job mobility is thus explained by the search for the best possible match.

Personality traits can affect how an individual perceives the quality of a given match. Open individuals for example, tend to seek new sensations and experiences. They might be more inclined to job mobility, as they become easily unhappy in routine jobs (Judge et al, 1999). Thus, we can expect Openness to Experience to affect lateral job mobility. Some authors have also suggested that open employees are skillful and active in the search of new employment opportunities, thus influencing the probability of upward mobility (Judge et al, 2002). A second personality trait that is highly likely to affect how one perceives an employment relationship is Neuroticism. Individuals who score high on Neuroticism can be expected to incur in lateral moves (Feldmann and Ng, 2007). These individuals usually suffer from low self-esteem and tend to lower their standards or completely withdraw from their tasks (Judge and Bono, 2001). They tend to search for approval and positive reinforcement by changing jobs (Feldmann and Ng, 2007).

Extraversion is expected to affect upward mobility positively. Extraverted individuals display high levels of activity and dominance, which are required at higher positions and managerial occupations (Seibert and Kraimer, 2001). They also seek new challenges and are "strongly motivated to enhance their career" (Gelissen and de Graaf, 2006: 705). Agreeableness has not been found to be related to any kind of job mobility in the existing literature (Feldmann and Ng, 2007; Gelissen and de Graaf, 2006; Ng et al, 2005).

Some economists argue that personality traits can be linked to economic preferences (Borghans et al, 2008; Almlund et al, 2011). Neuroticism and Agreeableness for example have been found to influence risk aversion positively (Borghans et al, 2008; Dohmen et al, 2010). We should expect a decreasing relationship between risk-adverse workers and job mobility. Risk-adverse workers are less likely to quit their jobs (Allen et al, 2005) and search less intensively for new alternatives (Diaz-Serrano and O'Neill, 2004). Additionally, if there is an overlapping between economic preferences and the BFI (Borghans et al, 2008; Almlund et al, 2011), the introduction of risk-aversion should decrease the effect of Agreeableness and Neuroticism.

Data, Measures and Methodology

To examine how personality traits affect different types of job mobility, I employ event history analysis for discrete time data. The arguments for using these types of models have been discussed elsewhere (Yamaguchi, 1990; Guijarro Usobiaga, 2014). I use a multinomial logistic model for competing risks, as the dependent variables consists of different categorical outcomes. The hazard rate in this type of models takes the following form:

$$h(k,t) = \frac{e^{X_{it}\beta_k}}{1 + \sum_j e^{X_{it}\beta_k}}$$

These models require the data to be transformed into "person-month-format", where each observation includes time-constant and time-varying indicators. The inclusion of a series of time-dummies captures the temporal dependence needed in these models (Box-Steffensmeier and Jones, 2004: 74).[12] The resulting multinomial logistic regression model can be specified as:

$$\text{logit}[h(t)] = \log(\frac{h(t)}{[1 - h(t)]}) = X_{it}\beta_k$$

The data used in this paper are drawn from the German Socio Economic Panel (SOEP). The SOEP is a representative longitudinal database that collects data of a random sample in West German households on a yearly base since 1984. Since the German reunification in 1990, the survey has been extended to East Germany. The SOEP provides rich information on individual's employment trajectories and labor market dynamics. Moreover, it includes valuable information on a series of socio-demographic indicators. A reduced version of the Big Five personality traits was introduced for the first time in 2005 and collected again in 2009 (Dehne and Schupp, 2007).

The paper's sample covers the period 1999-2009. The selection of this period is because to the wording and coding of most of the relevant questions of interest for my dataset remained unchanged during these years. The final sample consists of 12.699 men and women under working age (20-60 years) and includes both native and immigrant workers. The sampled individuals have reported being employed at least once during the observed period and have answered the batteries of question that contain the personality traits.

The sample is constructed from two different files of the SOEP. One part of the data is obtained from the monthly activity calendar, where respondents mark which of the fifteen listed activities they had performed each month. These data do not offer information on the spell length or employment changes and, in some cases respondents report contradictory activities within the same month. To correct for these errors and to add information about the

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[12] A detailed specification of the model can be found in Guijarro Usobiaga (2014).

characteristics of the job, I combine this longitudinal data with the contents of the cross-sectional files. In the latter, interviewees are asked to answer a set of questions about their current employment on a yearly basis. Questions include information about how long the individuals have been working in the same firm and if there have been any changes to their working situation (job terminations and start of the current position) within the last two years. However, most of this information is restricted to the current or the last job. If an individual presents multiple employment changes between the dates of the interviews, specific data about the job characteristics is limited to the last one.

I employ two different dependent variables to analyze how personality traits affect labor market mobility. The first outcome measures the probability of employed individuals to experience different types of vertical and horizontal mobility. The variable is coded "0" if the respondent remains employed in its current position or the spell is right censored, "1" if he becomes unemployed, and "2" if he exits the labor market. To measure mobility between occupations, I follow the method employed by Blossfeld et al (2006), which compares the change in the ISEI score from the subsequent job with the current one. A positive difference higher than 20 per cent is considered an "upward move", while a 20 per cent decrease is coded as a "downward move". Changes of 20 per cent or less are categorized as lateral moves. Upward, lateral, and downward mobility are coded "3", "4", and "5" respectively. As mentioned before, one of the limitations of the SOEP is that some employment spells might lack information on the characteristics of the job if multiple changes occur between the yearly interviews. This fact reduces the number of observed moves. The second dependent variable distinguishes between moves into occupational classes. Again, I control for staying employed, and moves out of contractual relationships (unemployment and inactivity). Moves into occupational classes are categorized into moves into the service class, the working class, and into the remaining classes.

The personality traits used in this article correspond to the different dimensions of the Big Five taxonomy: Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. The SOEP contains a 15-item short version of the original 240-items Big Five inventory. The respondents were asked about how they perceived themselves ("*I see myself as someone who...*") and had to indicate the degree of agreement on a 7-point Likert-type scale that ranges from 1 ("*does not apply to me at all*") to 7 ("*applies to me perfectly*"). Three items capture each of the dimensions. I transform the variables so that they are all ordered in the same direction. Table 2 provides an overview of the items that compose each of the five dimensions. A detailed explanation on the reliability and validity analyses is provided by several authors (Gerlitz and Schupp, 2005; Mueller and Plug, 2006; Dehne and Schupp, 2007; Heineck and Anger, 2010; Uysal and Pohlmeier, 2011).

I regress each of the five dimensions on age and age squared following the approach used by several researchers (Osborne, 2005; Nyhus and Pons, 2006; Heineck and Anger, 2010). The obtained residuals are personality traits free from age effects. I also limit my sample to employed individuals between the ages of 20 and 60. These decisions derive from the results obtained by Specht et al (2011). Using the same data employed in this article, the authors analyze the stability of the Five Factor Model. They report that these traits vary with age. Additionally, they investigate possible issues of reversed causality. They only find two labor market outcomes that can have an effect on the Big Five. The first one is an increase in Conscientiousness for young labor market entrants and a decrease in Conscientiousness for those who retire (Specht et al, 2011: 870).

Table 2 SOEP questions and personality dimensions

I see myself as someone who...		Dimension (Cronbach Alpha)
is original, comes up with new ideas.	+	Openness to Experience (0.6070)
values artistic experiences.	+	
has an active imagination.	+	
does a thorough job.	+	Conscientiousness (0.5953)
does things effectively and efficiently.	+	
tends to be lazy.	-	
is communicative, talkative.	+	Extraversion (0.6515)
is outgoing, sociable.	+	
is reserved.	-	
is sometimes somewhat rude to others.	-	Agreeableness (0.5025)
has a forgiving nature.	+	
is considerate and kind to others.	+	
worries a lot.	+	Neuroticism (0.6103)
gets nervous easily.	+	
is relaxed, handles stress well.	-	

Besides the Big Five personality traits, I include a variable that measures the extent to which people are willing to take risks on an 11 point scale (Dohmen et al, 2011). This indicator will be used to test for possible links between personality traits and economic preferences (Almlund et al, 2011). I also include several control variables. Amongst the demographic indicators I control for age (linear and squared), gender, migratory status, West-East Germany differences, marital status, and the number of children living at home. Educational and occupational attainments are measured through reduced versions of the CASMIN (Brauns and Steinmann, 1997) and the EGP (Hamplová and Kreidl, 2006) schemes. Dummy variables are incorporated to capture differences in the size of the company, between the public and the private sector, as well as between the primary, the secondary, and tertiary sector. Unemployment experience, as well as full-time and part-time experience, is included to control for possible frailty effects. Finally, I use the number of months an individual has been employed in its current position to capture time dependence. I recode time dependence in four different categories. Table 3 provides a summary of the descriptive statistics.

Table 3 Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Personality Traits					
Openness to Experience	937672	-0,345	1,157	-3,618	2,580
Conscientiousness	937672	0,053	0,852	-4,894	1,479
Extraversion	937672	-0,002	1,110	-3,994	2,261
Agreeableness	937672	0,007	0,960	-4,400	1,619
Neuroticism	937672	-0,054	1,195	-3,014	3,180
Risk-taking	937672	4,898	2,129	0	10
Demographic Indicators					
Gender (*ref. male*)	937672	0,496	0,500	0	1
Migrant	937672	0,153	0,360	0	1
West	937672	0,733	0,442	0	1
Age	937672	41,419	10,061	20	60
Age^2	937672	1816,747	828,195	400	3600
Children	937672	0,174	0,131	0	1
Marital Stauts	937672	0,678	0,467	0	1
Education (Ref.: College or University)					
Upper Secondary with Occ. Qual.	937672	0,078	0,269	0	1
Upper Secondary without Occ. Qual.	937672	0,029	0,168	0	1
Lower Secondary with Occ. Qual.	937672	0,300	0,459	0	1
Low. Sec. Without Occ. Qual. or less	937672	0,364	0,481	0	1
Occupation (Ref.: Service Occupations)					
Routine Non-Manual and Routine Service/Sales	937672	0,220	0,414	0	1
Self-Employed and Self-Employed Farmers	937672	0,006	0,074	0	1
Skilled Manual Workers	937672	0,163	0,369	0	1
Semi- and Unskilled Manual Workers	937672	0,152	0,359	0	1
Company Size	937672	0,371	0,483	0	1
Public Sector	937672	0,337	0,473	0	1
Sector (Ref.: Primary and secondary)	937672	0,616	0,486	0	1
Career Indicators					
Experience Full-Time Employment	937672	186,791	128,264	0	549
Experience Part-Time Employment	937672	32,321	62,309	0	545
Exeprience Unemployment	937672	5,421	14,985	0	284
Time Dependence Indicators (Ref.: 1-12 months)					
13 - 24 months	937672	0,165	0,371	0	1
25 - 36 months	937672	0,146	0,353	0	1
37 + months	937672	0,519	0,500	0	1

Results

Job mobility

Table 4 displays the results from a series of multinomial logistic regression models on the effects of personality traits on job mobility. Model 1 shows that almost each of the Big Five dimensions affect the probability of moving to a new job significantly. Agreeableness is the only exception. Although there is an effect of this dimension on the odds of experiencing a downward move, the coefficient is only significant at a 10 per cent significance level. Previous research in economics (Mueller and Plug, 2006; Nandi and Nicoletti, 2014) have argued that in wage negotiations, agreeable individuals are content with initial offers, while less agreeable employees tend to bargain more. A similar thing might occur with job mobility. Agreeable individuals might resign and accept demotions more easily than less agreeable employees. But again, my results do not show the statistical significance to support that argument.

However, the other Big Five dimensions significantly influence job mobility. A one standard deviation in Conscientiousness increases the odds of experiencing an upward move in 10 per cent compared to remaining in the same job. This result can be related to findings in previous research, where Conscientiousness has been related to career success (Tharenou, 1997; Judge et al, 1999). Conscientious workers tend to perform better than their counterparts (Barrick and Mount, 1991; Salgado, 1997), are dependable, and dutiful. In addition, conscientious individuals are achievement oriented, which increases their chances to be promoted (Judge et al, 1999).

Contrary to what I expected Neuroticism does not affect upward mobility. Although several scholars have argued that less emotionally stable individuals might be less likely to be promoted (Judge et al, 2002), my results do not support this claim. Model 1 shows that individuals with high scores on Neuroticism have higher odds of exiting an employment relationship by either becoming unemployed or inactive. These results are consistent with those

found elsewhere (Guijarro Usobiaga, 2014).[13] Additionally, one standard deviation in Neuroticism increases in 8,9 per cent the odds of moving to a new job in a similar position compared to staying at the same job. Quite interestingly, this finding points towards Feldman and Ng's explanation that less emotionally stable individuals tend to suffer from low self-esteem, thus forcing job changes to seek for positive affirmation (Feldman and Ng, 2007).

Similarly to Neuroticism, Extraversion also influences horizontal mobility. Although the literature has linked this dimension with career success and promotion into managerial occupations (Judge et al, 1999; Seibert and Kraimer, 2001), my results do not seem to support these assumptions. Finally, Openness to Experience has a significant impact on almost every type of move. With the exception of downward mobility, open individuals face higher odds of becoming unemployed or inactive, and of moving to better or similar occupations than remaining in the same job. Individuals who score high on this dimension are more likely to do "job hopping", especially as they need change and variety (Judge et al, 1999). These individuals get easily dissatisfied if they are employed in routine-task jobs.

Model 2 expands the previous model by including interactions between the Big Five and gender. The only significant result is the interaction term between Neuroticism and Gender. Being a woman reduces the odds of becoming unemployed in 8,6 per cent compared to being a man. This finding has been reported elsewhere and points towards discrimination practices based on gender stereotypes (Guijarro Usobiaga, 2014). The interaction between Extraversion and being female, although significant only at a 10 per cent level, might be hinting into the same direction. Men who are extraverted are rewarded for their assertiveness, dominance, and ambitiousness (Gelissen and de Graaf, 2006), while women are not. Yet, again, this finding should be taken with care.

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[13] There is a slight difference on the significance level of the effect of Neuroticism on becoming inactive between Guijarro Usobiaga (2014) and the results obtained here. This might be attributable to the reference category chosen in each paper. In the Guijarro Usobiaga's article (2014) the reference category is remaining employed, without distinguishing job changes. In this article however, the reference category "remaining employed in the same job" is more restrictive.

Table 4 Job mobility (Part 1)

	Model 1			Model 2			Model 3		
	Upward mobility	Lateral Mobility	Downward Mobility	Upward mobility	Lateral Mobility	Downward Mobility	Upward mobility	Lateral Mobility	Downward Mobility
Personality traits									
Openness to Experience	1.137***	1.039*	1.019	1.094+	1.046+	0.984			
	(0.038)	(0.018)	(0.036)	(0.051)	(0.026)	(0.052)			
Conscientiousness	1.100*	1.003	1.050	1.058	0.988	1.082			
	(0.044)	(0.022)	(0.048)	(0.054)	(0.030)	(0.068)			
Extraversion	1.013	1.050**	1.018	1.072	1.053*	1.059			
	(0.034)	(0.018)	(0.037)	(0.051)	(0.026)	(0.056)			
Agreeableness	0.993	0.981	0.926+	0.977	0.994	0.926			
	(0.037)	(0.019)	(0.038)	(0.050)	(0.028)	(0.056)			
Neuroticism	1.002	1.039*	1.033	1.016	1.017	1.021			
	(0.028)	(0.016)	(0.033)	(0.042)	(0.023)	(0.050)			
Risk taking							1.066***	1.037***	1.033+
							(0.018)	(0.009)	(0.019)
Gender * Openness				1.075	0.986	1.062			
				(0.069)	(0.033)	(0.074)			
Gender * Conscientiousness				1.086	1.031	0.944			
				(0.087)	(0.045)	(0.086)			
Gender * Extraversion				0.895+	0.994	0.931			
				(0.059)	(0.034)	(0.067)			
Gender * Agreeableness				1.033	0.973	1.002			
				(0.077)	(0.038)	(0.083)			
Gender * Neuroticism				0.972	1.039	1.019			
				(0.055)	(0.032)	(0.066)			
Gender * Risk taking									
Gender *(ref. male)*	0.899	0.965	0.940	0.890	0.966	0.946	0.995	1.027	0.978
	(0.076)	(0.041)	(0.086)	(0.077)	(0.041)	(0.087)	(0.083)	(0.043)	(0.086)
Constant	0.001***	0.005***	0.001***	0.001***	0.005***	0.001***	0.000***	0.004***	0.001***
	(0.000)	(0.002)	(0.001)	(0.000)	(0.002)	(0.001)	(0.000)	(0.001)	(0.001)
N	937,672	937,672	937,672	937,672	937,672	937,672	937,672	937,672	937,672
Chi²	6759	6759	6759	6778	6778	6778	6632	6632	6632
Adjusted R²	0.0448	0.0448	0.0448	0.0450	0.0450	0.0450	0.0441	0.0441	0.0441

Notes: Robust standard errors in parentheses
*** p<0.001, ** p<0.01, * p<0.05, + p<0.1

Table 4 Job mobility (Part 2)

	Model 4			Model 5			Model 6		
	Upward mobility	Lateral Mobility	Downward Mobility	Upward mobility	Lateral Mobility	Downward Mobility	Upward mobility	Lateral Mobility	Downward Mobility
Personality traits									
Openness to Experience				1.123***	1.030+	1.010	1.084+	1.038	0.977
				(0.037)	(0.018)	(0.036)	(0.051)	(0.026)	(0.052)
Conscientiousness				1.098*	1.002	1.049	1.055	0.986	1.081
				(0.044)	(0.022)	(0.048)	(0.054)	(0.030)	(0.068)
Extraversion				0.998	1.040*	1.009	1.060	1.042+	1.050
				(0.034)	(0.018)	(0.037)	(0.051)	(0.026)	(0.055)
Agreeableness				1.004	0.988	0.932+	0.984	1.000	0.932
				(0.037)	(0.020)	(0.039)	(0.050)	(0.028)	(0.056)
Neuroticism				1.012	1.046**	1.040	1.023	1.024	1.028
				(0.029)	(0.016)	(0.034)	(0.042)	(0.023)	(0.051)
Risk taking	1.059*	1.041**	1.036	1.052**	1.032***	1.031	1.043+	1.035**	1.031
	(0.026)	(0.013)	(0.029)	(0.018)	(0.009)	(0.019)	(0.026)	(0.013)	(0.029)
Gender * Openness							1.067	0.986	1.060
							(0.069)	(0.033)	(0.074)
Gender * Conscientiousness							1.087	1.032	0.944
							(0.087)	(0.045)	(0.086)
Gender * Extraversion							0.891+	0.996	0.931
							(0.059)	(0.035)	(0.067)
Gender * Agreeableness							1.043	0.974	1.003
							(0.078)	(0.038)	(0.083)
Gender * Neuroticism							0.979	1.040	1.020
							(0.055)	(0.032)	(0.067)
Gender * Risk taking	1.013	0.992	0.995				1.016	0.996	1.000
	(0.034)	(0.017)	(0.037)				(0.034)	(0.018)	(0.038)
Gender *(ref. male)*	0.929	1.073	1.004	0.932	0.986	0.958	0.849	1.009	0.964
	(0.185)	(0.105)	(0.217)	(0.080)	(0.042)	(0.088)	(0.170)	(0.102)	(0.212)
Constant	0.000***	0.004***	0.001***	0.000***	0.004***	0.001***	0.000***	0.004***	0.001***
	(0.000)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)
N	937,672	937,672	937,672	937,672	937,672	937,672	937,672	937,672	937,672
Chi²	6647	6647	6647	6802	6802	6802	6834	6834	6834
Adjusted R²	0.0442	0.0442	0.0442	0.0451	0.0451	0.0451	0.0453	0.0453	0.0453

Notes: Robust standard errors in parentheses
*** p<0.001, ** p<0.01, * p<0.05, + p<0.1

In Models 3 and 4, a variable measuring the extent to which people are willing to take risks substitutes the BFI. Most of the interactions between risk taking and gender do not show any significant effects, with the only exception being unemployment incidence (Model 4). Model 3 shows risk-taking displaying an effect similar to Openness to Experience. Risk-taking increases the odds of every other outcome besides downward mobility. Although there is small variation in the significance of Openness to Experience when risk-taking is included in the same model (Model 5 and 6), it does not provide conclusive evidence to assess a relationship between personality traits and economic preferences.

Moves into the service and the working class

The analyses displayed in Table 4 showed how the Big Five affected job mobility across occupations. In addition, I examine if personality traits influence the odds of entering the service (highest) and the working (lowest) occupational classes.

Although not displayed here (see the full table in the Appendix 2), the strongest predictor of moving into the service class is being already employed in the service class. The same applies to moves into the working class. In Germany, the educational system and the labor market are tightly connected, reducing job mismatches and search processes at the beginning of individuals' careers (Shavit and Müller, 1998).

Amongst the Big Five personality traits, Model 1 shows that Openness to Experience increases the probability of moves into the service class and to occupations located in the middle of the distribution. Extraversion affects the probability of moving into other classes that are neither the service nor the working class. Model 2 examines if there are differences in the effects of the Big Five between men and women. The results from the analysis indicate that

Table 5 Moves into the service and the working class (Part 1)

	Model 1			Model 2			Model 3		
	Service Class	Working Class	Other Classes	Service Class	Working Class	Other Classes	Service Class	Working Class	Other Classes
Personality traits									
Openness to Experience	1.081***	1.044	1.053*	1.080**	1.036	1.052			
	(0.023)	(0.027)	(0.028)	(0.031)	(0.035)	(0.056)			
Conscientiousness	1.018	1.039	1.004	0.990	1.067	0.886*			
	(0.027)	(0.036)	(0.035)	(0.034)	(0.045)	(0.052)			
Extraversion	1.019	1.020	1.098***	1.060*	1.005	1.265***			
	(0.021)	(0.027)	(0.030)	(0.031)	(0.034)	(0.071)			
Agreeableness	0.967	0.971	0.989	0.973	0.988	0.952			
	(0.023)	(0.029)	(0.031)	(0.032)	(0.036)	(0.055)			
Neuroticism	1.017	1.038	1.036	1.021	1.006	0.993			
	(0.019)	(0.024)	(0.025)	(0.027)	(0.031)	(0.046)			
Risk taking							1.034**	1.029*	1.084***
							(0.011)	(0.013)	(0.015)
Gender * Openness				1.002	1.019	1.004			
				(0.041)	(0.054)	(0.061)			
Gender * Conscientiousness				1.061	0.920	1.195*			
				(0.055)	(0.069)	(0.086)			
Gender * Extraversion				0.922+	1.045	0.826**			
				(0.039)	(0.058)	(0.053)			
Gender * Agreeableness				0.987	0.950	1.048			
				(0.047)	(0.061)	(0.072)			
Gender * Neuroticism				0.990	1.087+	1.053			
				(0.037)	(0.052)	(0.057)			
Gender * Risk taking									
Gender *(ref. male)*	0.904*	0.705***	1.448***	0.909+	0.705***	1.521***	0.947	0.747***	1.617***
	(0.045)	(0.053)	(0.108)	(0.046)	(0.054)	(0.117)	(0.046)	(0.054)	(0.119)
Constant	0.006***	0.000***	0.001***	0.006***	0.000***	0.001***	0.005***	0.000***	0.000***
	(0.003)	(0.000)	(0.000)	(0.002)	(0.000)	(0.000)	(0.002)	(0.000)	(0.000)
N	937,799	937,799	937,799	937,799	937,799	937,799	937,799	937,799	937,799
Chi²	9737	9737	9737	9730	9730	9730	9619	9619	9619
Adjusted R²	0.0724	0.0724	0.0724	0.0728	0.0728	0.0728	0.0719	0.0719	0.0719

Notes: Robust standard errors in parentheses
*** p<0.001, ** p<0.01, * p<0.05, + p<0.1

Table 5 Moves into the service and the working class (Part 2)

	Model 4			Model 5			Model 6		
	Service Class	Working Class	Other Classes	Service Class	Working Class	Other Classes	Service Class	Working Class	Other Classes
Personality traits									
Openness to Experience				1.073***	1.038	1.032	1.077*	1.028	1.024
				(0.023)	(0.027)	(0.027)	(0.031)	(0.035)	(0.055)
Conscientiousness				1.017	1.038	1.002	0.990	1.064	0.884*
				(0.026)	(0.036)	(0.035)	(0.034)	(0.045)	(0.052)
Extraversion				1.012	1.013	1.076**	1.056+	0.995	1.225***
				(0.021)	(0.027)	(0.030)	(0.031)	(0.034)	(0.069)
Agreeableness				0.973	0.976	1.007	0.975	0.996	0.973
				(0.024)	(0.030)	(0.031)	(0.032)	(0.036)	(0.057)
Neuroticism				1.024	1.042+	1.056*	1.024	1.012	1.014
				(0.019)	(0.024)	(0.025)	(0.027)	(0.031)	(0.048)
Risk taking	1.025	1.042**	1.145***	1.026*	1.025+	1.076***	1.013	1.039*	1.119***
	(0.016)	(0.017)	(0.032)	(0.012)	(0.013)	(0.015)	(0.016)	(0.017)	(0.032)
Gender * Openness							0.994	1.028	1.012
							(0.041)	(0.055)	(0.062)
Gender * Conscientiousness							1.059	0.923	1.196*
							(0.055)	(0.070)	(0.086)
Gender * Extraversion							0.917*	1.055	0.838**
							(0.039)	(0.059)	(0.054)
Gender * Agreeableness							0.993	0.943	1.042
							(0.048)	(0.061)	(0.072)
Gender * Neuroticism							0.997	1.082+	1.048
							(0.038)	(0.051)	(0.058)
Gender * Risk taking	1.016	0.967	0.931*				1.024	0.962	0.951
	(0.022)	(0.025)	(0.029)				(0.023)	(0.026)	(0.031)
Gender *(ref. male)*	0.870	0.886	2.427***	0.918+	0.718***	1.525***	0.818	0.874	2.126***
	(0.107)	(0.132)	(0.477)	(0.047)	(0.054)	(0.115)	(0.102)	(0.136)	(0.424)
Constant	0.005***	0.000***	0.000***	0.005***	0.000***	0.000***	0.006***	0.000***	0.000***
	(0.002)	(0.000)	(0.000)	(0.002)	(0.000)	(0.000)	(0.002)	(0.000)	(0.000)
N	937,799	937,799	937,799	937,799	937,799	937,799	937,799	937,799	937,799
Chi²	9604	9604	9604	9817	9817	9817	9814	9814	9814
Adjusted R²	0.0720	0.0720	0.0720	0.0728	0.0728	0.0728	0.0732	0.0732	0.0732

Notes: Robust standard errors in parentheses
*** p<0.001, ** p<0.01, * p<0.05, + p<0.1

conscientious women have higher odds of moving into "other classes", while Extraversion reduces their chances.

Individuals who have a tendency to take risks display higher probabilities of leaving their current job and moving into any of the different states, including becoming unemployed or inactive. Yet, when we analyze gender differences, Model 4 shows that for women, risk-taking only increases their odds of moving into other classes or becoming unemployed. How does the inclusion of risk-taking affect the Big Five dimensions? In Model 5 we witness that Openness to Experience does not predict moves into other classes anymore. In addition, Neuroticism now increases the odds of moving into middle-ranged occupations and to the working class. The effect of the latter is only significant at a 10 per cent level. There is no significant variation amongst the interactions.

Discussion and conclusions

In this article I have shown that personality traits affect different types of job mobility. Although the effects of the Big Five on the different outcomes are modest compared to education level and occupational position, it is important to note that it is highly likely that these indicators might be affected by personality traits (Almlund et al, 2011). Assessing the exact magnitude of the direct and the indirect effects of the Big Five is an interesting idea for future research.

Notwithstanding, the results I have obtained coincide almost entirely to the expectations and findings of the psychological literature. Moreover, they also support Fuller's assumption that part of the variance of job mobility processes is explained by unobservable differences amongst workers' preferences and aptitudes (Fuller, 2008). Although difficult to assess, my results suggest that the mechanism through which personality traits affect job mobility is by its link to preferences. With the exception of Conscientiousness, Openness, Extraversion, and Neuroticism

seem to affect how individuals value their current position and perceive the alternatives. However, this statement should be taken with care. To claim that these are the mechanisms in place, more research is needed.

A possible way of solving this puzzle could be by including measures of job satisfaction and worker's prospects of their future. A positive relationship between less emotionally stable employees, low job satisfaction, and a wish to change firm, would support the argument that individuals with high scores on Neuroticism get easily dissatisfied and search for reaffirmation elsewhere (Feldman and Ng, 2007). Another alternative would involve the use of experiments. By simulating labor market conditions in laboratories, we could identify the underlying processes of job moves. The work of some economists in that direction is quite interesting (see e.g. Dohmen et al, 2011).

Finally, the results of the second analysis point towards the need of additional research. First, splitting classes into more detailed occupational groups in a similar fashion as done by Jackson (2006) might enable us to identify more differences between personality traits. For example, lower scores on Agreeableness might have a positive effect on the probability of becoming a manager. Secondly, the strongest determinant of moving into a job in one of the examined classes is being already in that class. This finding highlights the needs of examining labor market entry processes. However, this task is far from being easy. As shown by Specht et al (2011), individuals apparently become more conscientious when they get their first job.

In sum, getting ahead in the labor market is not only dependent on educational credentials and occupational attainment, but also to individual's differences in personality traits.

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	Model 1					Model 2					Model 3				
	Unemployment	Inactivity	Upward mobility	Lateral Mobility	Downward Mobility	Unemployment	Inactivity	Upward mobility	Lateral Mobility	Downward Mobility	Unemployment	Inactivity	Upward mobility	Lateral Mobility	Downward Mobility
Personality traits															
Openness to Experience	1.054*	1.149***	1.137***	1.039*	1.019	1.046	1.154**	1.094+	1.046+	0.984					
	(0.022)	(0.034)	(0.038)	(0.018)	(0.036)	(0.030)	(0.060)	(0.051)	(0.026)	(0.052)					
Conscientiousness	0.932**	0.861***	1.100*	1.003	1.050	0.945	0.824***	1.058	0.988	1.082					
	(0.025)	(0.030)	(0.044)	(0.022)	(0.048)	(0.033)	(0.045)	(0.054)	(0.030)	(0.068)					
Extraversion	1.021	0.983	1.013	1.050**	1.018	1.024	1.006	1.072	1.053*	1.059					
	(0.022)	(0.029)	(0.034)	(0.018)	(0.037)	(0.031)	(0.052)	(0.051)	(0.026)	(0.056)					
Agreeableness	1.040	1.020	0.993	0.981	0.926+	1.047	0.946	0.977	0.994	0.926					
	(0.025)	(0.035)	(0.037)	(0.019)	(0.038)	(0.034)	(0.054)	(0.050)	(0.028)	(0.056)					
Neuroticism	1.059**	1.051+	1.002	1.039*	1.033	1.109***	1.000	1.016	1.017	1.021					
	(0.020)	(0.028)	(0.028)	(0.016)	(0.033)	(0.030)	(0.046)	(0.042)	(0.023)	(0.050)					
Risk taking											1.029**	1.031*	1.066***	1.037***	1.033+
											(0.011)	(0.015)	(0.018)	(0.009)	(0.019)
Gender * Openness						1.015	0.996	1.075	0.986	1.062					
						(0.041)	(0.063)	(0.069)	(0.033)	(0.074)					
Gender * Conscientiousness						0.975	1.072	1.086	1.031	0.944					
						(0.051)	(0.075)	(0.087)	(0.045)	(0.086)					
Gender * Extraversion						0.991	0.966	0.895+	0.994	0.931					
						(0.042)	(0.061)	(0.059)	(0.034)	(0.067)					
Gender * Agreeableness						0.990	1.122	1.033	0.973	1.002					
						(0.048)	(0.081)	(0.077)	(0.038)	(0.083)					
Gender * Neuroticism						0.914*	1.074	0.972	1.039	1.019					
						(0.035)	(0.061)	(0.055)	(0.032)	(0.066)					
Gender * Risk taking															
Demographic Indicators															
Gender *(ref. male)*	0.939	1.553***	0.899	0.965	0.940	0.948	1.586***	0.890	0.966	0.946	0.995	1.629***	0.995	1.027	0.978
	(0.052)	(0.119)	(0.076)	(0.041)	(0.086)	(0.052)	(0.126)	(0.077)	(0.041)	(0.087)	(0.053)	(0.123)	(0.083)	(0.043)	(0.086)
Age	0.907***	0.640***	1.039	1.020	1.035	0.907***	0.640***	1.040	1.020	1.035	0.908***	0.640***	1.039	1.020	1.034
	(0.016)	(0.016)	(0.031)	(0.016)	(0.034)	(0.016)	(0.016)	(0.031)	(0.016)	(0.034)	(0.016)	(0.016)	(0.031)	(0.016)	(0.034)
Age²	1.001***	1.006***	0.999*	0.999***	0.999	1.001***	1.006***	0.999*	0.999***	0.999	1.001***	1.006***	0.999*	0.999***	0.999
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
West Germany *(ref. East)*	0.521***	1.131	1.137	1.084+	0.796*	0.521***	1.128	1.139	1.083+	0.797*	0.525***	1.171*	1.155+	1.088+	0.799*
	(0.027)	(0.088)	(0.097)	(0.047)	(0.071)	(0.027)	(0.087)	(0.097)	(0.047)	(0.071)	(0.027)	(0.090)	(0.098)	(0.047)	(0.071)
Migrant *(ref. native)*	1.227***	0.933	0.787*	0.849**	1.229+	1.225***	0.941	0.785*	0.850**	1.228+	1.224***	0.912	0.792*	0.848**	1.223+
	(0.074)	(0.079)	(0.078)	(0.045)	(0.131)	(0.074)	(0.080)	(0.078)	(0.045)	(0.131)	(0.073)	(0.077)	(0.078)	(0.045)	(0.130)
Children at home	1.107	0.909	0.966	1.074	1.108	1.112	0.909	0.970	1.074	1.111	1.110	0.906	0.920	1.052	1.073
	(0.143)	(0.122)	(0.173)	(0.113)	(0.241)	(0.143)	(0.122)	(0.174)	(0.113)	(0.242)	(0.143)	(0.121)	(0.165)	(0.110)	(0.233)
Married	0.766***	1.399***	0.780**	1.009	0.914	0.765***	1.396***	0.779**	1.009	0.914	0.764***	1.381***	0.779**	1.011	0.914
	(0.039)	(0.114)	(0.063)	(0.042)	(0.082)	(0.039)	(0.114)	(0.063)	(0.042)	(0.082)	(0.039)	(0.113)	(0.063)	(0.042)	(0.082)
Educational attainment (ref. College or University)															
Upper secondary with occupational qualifications	0.935	1.110	0.983	0.785***	0.826	0.939	1.107	0.984	0.784***	0.825	0.938	1.089	0.974	0.793***	0.832
	(0.100)	(0.157)	(0.134)	(0.052)	(0.123)	(0.100)	(0.156)	(0.134)	(0.052)	(0.123)	(0.100)	(0.153)	(0.133)	(0.052)	(0.124)
Upper secondary without occupational	0.462***	2.175***	1.502**	0.646***	1.445*	0.462***	2.190***	1.515**	0.645***	1.444*	0.477***	2.284***	1.495**	0.657***	1.450*

qualifications														
(0.085)	(0.298)	(0.230)	(0.064)	(0.250)	(0.085)	(0.300)	(0.232)	(0.064)	(0.250)	(0.088)	(0.309)	(0.229)	(0.065)	(0.249)
Lower secondary with occupational qualifications														
1.079	1.114	0.617***	0.641***	0.864	1.082	1.111	0.616***	0.641***	0.861	1.070	1.064	0.613***	0.644***	0.872
(0.080)	(0.120)	(0.074)	(0.034)	(0.099)	(0.080)	(0.120)	(0.074)	(0.034)	(0.099)	(0.079)	(0.114)	(0.073)	(0.034)	(0.100)
Lower secondary without occupational qualification or less														
1.256**	1.165	0.521***	0.581***	1.108	1.254**	1.164	0.519***	0.581***	1.102	1.250**	1.112	0.512***	0.584***	1.118
(0.097)	(0.124)	(0.067)	(0.033)	(0.131)	(0.097)	(0.124)	(0.067)	(0.034)	(0.130)	(0.096)	(0.118)	(0.066)	(0.034)	(0.131)
Occupation (ref. Service occupations)														
Routine non-manual and routine														
1.416***	1.477***	1.986***	1.299***	0.776**	1.411***	1.475***	1.972***	1.300***	0.775**	1.415***	1.482***	1.970***	1.295***	0.775**
(0.094)	(0.120)	(0.209)	(0.062)	(0.073)	(0.094)	(0.120)	(0.207)	(0.062)	(0.073)	(0.094)	(0.119)	(0.207)	(0.061)	(0.073)
Self-Employed and self-employed farmers														
0.634	1.038	3.152***	0.683	0.692	0.634	1.022	3.130***	0.684	0.686	0.640	1.094	3.207***	0.682	0.687
(0.228)	(0.430)	(0.990)	(0.208)	(0.315)	(0.228)	(0.424)	(0.986)	(0.208)	(0.312)	(0.230)	(0.453)	(1.005)	(0.207)	(0.312)
Skilled manual workers														
1.606***	1.394**	2.285***	1.583***	0.492***	1.603***	1.394**	2.293***	1.590***	0.490***	1.603***	1.379**	2.285***	1.581***	0.498***
(0.115)	(0.157)	(0.301)	(0.091)	(0.069)	(0.115)	(0.158)	(0.303)	(0.092)	(0.069)	(0.115)	(0.155)	(0.302)	(0.091)	(0.070)
Semi- and unskilled workers														
1.858***	1.801***	4.916***	1.368***	0.471***	1.856***	1.799***	4.895***	1.370***	0.469***	1.859***	1.794***	4.899***	1.368***	0.474***
(0.127)	(0.165)	(0.524)	(0.078)	(0.063)	(0.127)	(0.165)	(0.521)	(0.078)	(0.063)	(0.128)	(0.165)	(0.525)	(0.078)	(0.063)
Company size														
0.770***	1.409***	1.185*	1.097*	1.097	0.772***	1.409***	1.188*	1.096*	1.097	0.768***	1.395***	1.164*	1.095*	1.098
(0.041)	(0.090)	(0.085)	(0.040)	(0.088)	(0.041)	(0.090)	(0.087)	(0.040)	(0.088)	(0.041)	(0.085)	(0.085)	(0.040)	(0.088)
Public company														
0.509***	0.716***	0.512***	0.709***	0.432***	0.508***	0.717***	0.511***	0.710***	0.431***	0.515***	0.731***	0.524***	0.716***	0.434***
(0.032)	(0.051)	(0.047)	(0.030)	(0.042)	(0.032)	(0.051)	(0.047)	(0.030)	(0.042)	(0.032)	(0.052)	(0.048)	(0.030)	(0.042)
Sector *(ref. Primary and secondary)*														
1.133*	1.402***	1.453***	1.626***	1.511***	1.138*	1.393***	1.449***	1.622***	1.510***	1.137*	1.400***	1.438***	1.624***	1.503***
(0.060)	(0.107)	(0.123)	(0.074)	(0.139)	(0.060)	(0.106)	(0.123)	(0.074)	(0.140)	(0.060)	(0.106)	(0.122)	(0.073)	(0.139)
Experience full-time														
0.998***	0.998***	0.999*	0.999**	0.997***	0.998***	0.998***	0.999*	0.999**	0.997***	0.998***	0.998***	0.999+	0.999*	0.997***
(0.000)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)
Experience part-time														
0.997***	0.999+	1.000	0.999**	0.999	0.997***	0.999+	1.000	0.999**	0.999	0.997***	0.999*	1.000	0.999**	0.999
(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Unemployment experience														
1.011***	0.998	1.003	1.001	1.006***	1.011***	0.998	1.003+	1.001	1.006***	1.011***	0.998	1.003	1.001	1.006***
(0.001)	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)
Time periods (ref. 1 – 12 months)														
13 – 24 months														
1.522***	1.301**	1.551***	1.386***	1.369**	1.524***	1.299**	1.551***	1.386***	1.369**	1.521***	1.295**	1.550***	1.384***	1.368**
(0.089)	(0.114)	(0.160)	(0.072)	(0.145)	(0.089)	(0.114)	(0.160)	(0.072)	(0.145)	(0.089)	(0.113)	(0.160)	(0.072)	(0.145)
25 – 36 months														
0.683***	0.816+	1.551***	1.276***	1.321*	0.684***	0.815+	1.550***	1.276***	1.321*	0.682***	0.812+	1.550***	1.274***	1.321*
(0.053)	(0.088)	(0.172)	(0.072)	(0.151)	(0.053)	(0.088)	(0.172)	(0.072)	(0.151)	(0.053)	(0.087)	(0.172)	(0.072)	(0.151)
37 + months														
0.656***	0.887	1.295**	0.812***	0.645***	0.658***	0.884	1.295**	0.812***	0.646***	0.654***	0.878	1.291*	0.810***	0.644***
(0.040)	(0.077)	(0.129)	(0.043)	(0.072)	(0.040)	(0.077)	(0.129)	(0.043)	(0.072)	(0.040)	(0.076)	(0.129)	(0.043)	(0.072)
Constant														
0.023***	1.775	0.001***	0.005***	0.001***	0.023***	1.696	0.001***	0.005***	0.001***	0.018***	1.477	0.000***	0.004***	0.001***
(0.008)	(0.828)	(0.000)	(0.002)	(0.001)	(0.008)	(0.793)	(0.000)	(0.002)	(0.001)	(0.007)	(0.720)	(0.000)	(0.001)	(0.001)
N														
937,672	937,672	937,672	937,672	937,672	937,672	937,672	937,672	937,672	937,672	937,672	937,672	937,672	937,672	937,672
Chi²														
6759	6759	6759	6759	6759	6778	6778	6778	6778	6778	6632	6632	6632	6632	6632
Adjusted R²														
0.0448	0.0448	0.0448	0.0448	0.0448	0.0450	0.0450	0.0450	0.0450	0.0450	0.0441	0.0441	0.0441	0.0441	0.0441

Notes: Robust standard errors in parentheses
*** p<0.001, ** p<0.01, * p<0.05, + p<0.1

	Model 4					Model 5					Model 6				
	Unemployment	Inactivity	Upward mobility	Lateral Mobility	Downward Mobility	Unemployment	Inactivity	Upward mobility	Lateral Mobility	Downward Mobility	Unemployment	Inactivity	Upward mobility	Lateral Mobility	Downward Mobility
Personality traits															
Openness to Experience						1.046*	1.141***	1.123***	1.030+	1.010	1.044	1.150**	1.084+	1.038	0.977
						(0.022)	(0.034)	(0.037)	(0.018)	(0.036)	(0.030)	(0.060)	(0.051)	(0.026)	(0.052)
Conscientiousness						0.931**	0.860***	1.098*	1.002	1.049	0.944	0.823***	1.055	0.986	1.081
						(0.025)	(0.030)	(0.044)	(0.022)	(0.048)	(0.033)	(0.045)	(0.054)	(0.030)	(0.068)
Extraversion						1.013	0.976	0.998	1.040*	1.009	1.022	1.003	1.060	1.042+	1.050
						(0.022)	(0.029)	(0.034)	(0.018)	(0.037)	(0.031)	(0.052)	(0.051)	(0.026)	(0.055)
Agreeableness						1.046+	1.027	1.004	0.988	0.932+	1.048	0.949	0.984	1.000	0.932
						(0.025)	(0.035)	(0.037)	(0.020)	(0.039)	(0.034)	(0.055)	(0.050)	(0.028)	(0.056)
Neuroticism						1.065**	1.058*	1.012	1.046**	1.040	1.111***	1.003	1.023	1.024	1.028
						(0.020)	(0.029)	(0.029)	(0.016)	(0.034)	(0.030)	(0.047)	(0.042)	(0.023)	(0.051)
Risk taking	1.007	1.021	1.059*	1.041**	1.036	1.030**	1.028+	1.052**	1.032***	1.031	1.008	1.012	1.043+	1.035**	1.031
	(0.015)	(0.025)	(0.026)	(0.013)	(0.029)	(0.011)	(0.016)	(0.018)	(0.009)	(0.019)	(0.015)	(0.026)	(0.026)	(0.013)	(0.029)
Gender * Openness											1.002	0.990	1.067	0.986	1.060
											(0.041)	(0.062)	(0.069)	(0.033)	(0.074)
Gender * Conscientiousness											0.976	1.071	1.087	1.032	0.944
											(0.051)	(0.075)	(0.087)	(0.045)	(0.086)
Gender * Extraversion											0.979	0.957	0.891+	0.996	0.931
											(0.042)	(0.061)	(0.059)	(0.035)	(0.067)
Gender * Agreeableness											0.998	1.130+	1.043	0.974	1.003
											(0.049)	(0.081)	(0.078)	(0.038)	(0.083)
Gender * Neuroticism											0.924*	1.081	0.979	1.040	1.020
											(0.035)	(0.062)	(0.055)	(0.032)	(0.067)
Gender * Risk taking	1.044*	1.014	1.013	0.992	0.995						1.041+	1.025	1.016	0.996	1.000
	(0.021)	(0.031)	(0.034)	(0.017)	(0.037)						(0.022)	(0.032)	(0.034)	(0.018)	(0.038)
Gender *(ref. male)*	0.797+	1.512*	0.929	1.073	1.004	0.958	1.582***	0.932	0.986	0.958	0.784*	1.417+	0.849	1.009	0.964
	(0.093)	(0.263)	(0.185)	(0.105)	(0.217)	(0.053)	(0.122)	(0.080)	(0.042)	(0.088)	(0.095)	(0.258)	(0.170)	(0.102)	(0.212)
Age	0.908***	0.640***	1.039	1.020	1.034	0.909***	0.641***	1.041	1.022	1.037	0.909***	0.642***	1.042	1.022	1.037
	(0.016)	(0.016)	(0.031)	(0.016)	(0.034)	(0.016)	(0.016)	(0.031)	(0.016)	(0.034)	(0.016)	(0.016)	(0.031)	(0.016)	(0.034)
Age²	1.001***	1.006***	0.999*	0.999***	0.999	1.001***	1.006***	0.999*	0.999***	0.999	1.001***	1.006***	0.999*	0.999***	0.999
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
West Germany *(ref. East)*	0.527***	1.172*	1.156+	1.088+	0.799*	0.524***	1.137+	1.146	1.089*	0.800*	0.526***	1.136	1.149	1.087+	0.800*
	(0.027)	(0.091)	(0.098)	(0.047)	(0.071)	(0.027)	(0.088)	(0.098)	(0.047)	(0.071)	(0.027)	(0.088)	(0.098)	(0.047)	(0.072)
Migrant *(ref. native)*	1.224***	0.912	0.792*	0.848**	1.223+	1.225***	0.931	0.785*	0.848**	1.228+	1.223***	0.939	0.785*	0.849**	1.228+
	(0.073)	(0.077)	(0.078)	(0.045)	(0.130)	(0.074)	(0.079)	(0.078)	(0.045)	(0.131)	(0.074)	(0.080)	(0.078)	(0.045)	(0.131)
Children at home	1.105	0.905	0.919	1.053	1.074	1.098	0.896	0.941	1.058	1.093	1.098	0.893	0.943	1.058	1.096
	(0.142)	(0.121)	(0.165)	(0.110)	(0.233)	(0.142)	(0.120)	(0.169)	(0.111)	(0.238)	(0.142)	(0.120)	(0.169)	(0.111)	(0.239)
Married	0.763***	1.380***	0.779**	1.011	0.914	0.765***	1.400***	0.781**	1.010	0.915	0.764***	1.395***	0.780**	1.010	0.915
	(0.039)	(0.113)	(0.063)	(0.042)	(0.082)	(0.039)	(0.114)	(0.063)	(0.042)	(0.083)	(0.039)	(0.114)	(0.063)	(0.042)	(0.083)
Educational attainment (ref. College or University)															
Upper secondary with occupational qualifications	0.937	1.088	0.975	0.793***	0.831	0.940	1.116	0.989	0.788***	0.828	0.942	1.112	0.989	0.787***	0.827
	(0.100)	(0.153)	(0.133)	(0.052)	(0.124)	(0.101)	(0.158)	(0.135)	(0.052)	(0.124)	(0.101)	(0.157)	(0.135)	(0.052)	(0.124)
Upper secondary without occupational qualifications	0.475***	2.283***	1.494**	0.657***	1.450*	0.464***	2.188***	1.506**	0.647***	1.450*	0.463***	2.202***	1.518**	0.647***	1.449*

	(0.088)	(0.309)	(0.229)	(0.065)	(0.249)	(0.086)	(0.301)	(0.231)	(0.064)	(0.251)	(0.085)	(0.303)	(0.233)	(0.064)	(0.251)
Lower secondary with occupational qualifications	1.071	1.064	0.613***	0.644***	0.872	1.081	1.118	0.616***	0.642***	0.864	1.083	1.114	0.616***	0.641***	0.861
	(0.079)	(0.114)	(0.074)	(0.034)	(0.100)	(0.080)	(0.121)	(0.074)	(0.034)	(0.099)	(0.081)	(0.120)	(0.074)	(0.034)	(0.099)
Lower secondary without occupational qualification or less	1.250**	1.112	0.512***	0.584***	1.118	1.259**	1.169	0.521***	0.581***	1.108	1.256**	1.168	0.520***	0.582***	1.103
	(0.096)	(0.118)	(0.066)	(0.034)	(0.131)	(0.098)	(0.125)	(0.067)	(0.033)	(0.131)	(0.097)	(0.125)	(0.067)	(0.033)	(0.130)
Occupation (ref. Service occupations)															
Routine non-manual and routine	1.415***	1.481***	1.971***	1.295***	0.775**	1.419***	1.478***	1.990***	1.300***	0.778**	1.415***	1.476***	1.978***	1.301***	0.777**
	(0.094)	(0.119)	(0.207)	(0.061)	(0.073)	(0.094)	(0.120)	(0.209)	(0.062)	(0.073)	(0.094)	(0.120)	(0.208)	(0.062)	(0.073)
Self-Employed and self-employed farmers	0.640	1.098	3.216***	0.682	0.687	0.632	1.038	3.141***	0.677	0.690	0.633	1.025	3.135***	0.677	0.683
	(0.230)	(0.455)	(1.009)	(0.207)	(0.312)	(0.227)	(0.430)	(0.985)	(0.206)	(0.313)	(0.227)	(0.425)	(0.986)	(0.206)	(0.311)
Skilled manual workers	1.608***	1.380**	2.287***	1.580***	0.498***	1.613***	1.397**	2.293***	1.586***	0.493***	1.615***	1.401**	2.305***	1.592***	0.491***
	(0.115)	(0.156)	(0.302)	(0.091)	(0.070)	(0.116)	(0.158)	(0.302)	(0.091)	(0.069)	(0.116)	(0.159)	(0.304)	(0.092)	(0.070)
Semi- and unskilled workers	1.862***	1.794***	4.899***	1.368***	0.474***	1.870***	1.810***	4.955***	1.376***	0.474***	1.872***	1.809***	4.937***	1.378***	0.472***
	(0.128)	(0.165)	(0.525)	(0.078)	(0.063)	(0.128)	(0.166)	(0.528)	(0.078)	(0.063)	(0.128)	(0.166)	(0.525)	(0.078)	(0.063)
Company size	0.768***	1.395***	1.164*	1.095*	1.098	0.770***	1.407***	1.184*	1.097*	1.098	0.773***	1.407***	1.186*	1.096*	1.098
	(0.041)	(0.089)	(0.085)	(0.040)	(0.088)	(0.041)	(0.090)	(0.087)	(0.040)	(0.088)	(0.041)	(0.090)	(0.087)	(0.040)	(0.088)
Public company	0.514***	0.731***	0.524***	0.716***	0.434***	0.512***	0.720***	0.517***	0.713***	0.435***	0.509***	0.721***	0.516***	0.714***	0.434***
	(0.032)	(0.052)	(0.048)	(0.030)	(0.042)	(0.032)	(0.051)	(0.047)	(0.030)	(0.043)	(0.032)	(0.051)	(0.047)	(0.030)	(0.042)
Sector *(ref. Primary and secondary)*	1.138*	1.400***	1.438***	1.624***	1.503***	1.132*	1.401***	1.453***	1.624***	1.510***	1.136*	1.391***	1.449***	1.620***	1.509***
	(0.060)	(0.107)	(0.122)	(0.073)	(0.139)	(0.060)	(0.107)	(0.123)	(0.074)	(0.139)	(0.060)	(0.106)	(0.123)	(0.073)	(0.140)
Experience full-time	0.998***	0.998***	0.999+	0.999*	0.997***	0.998***	0.998***	0.999*	0.999**	0.997***	0.998***	0.998***	0.999*	0.999*	0.997***
	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)
Experience part-time	0.997***	0.999*	1.000	0.999*	0.999	0.997***	0.999+	1.000	0.999*	0.999	0.997***	0.999+	1.000	0.999*	0.999
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Unemployment experience	1.011***	0.998	1.003	1.001	1.006***	1.011***	0.998	1.003	1.001	1.006***	1.011***	0.997	1.003	1.001	1.006***
	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)
Time periods (ref. 1 – 12 months)															
13 – 24 months	1.522***	1.296**	1.550***	1.384***	1.368**	1.523***	1.303**	1.555***	1.387***	1.370**	1.526***	1.302**	1.555***	1.387***	1.370**
	(0.089)	(0.113)	(0.160)	(0.072)	(0.145)	(0.089)	(0.114)	(0.161)	(0.072)	(0.145)	(0.089)	(0.114)	(0.161)	(0.072)	(0.145)
25 – 36 months	0.682***	0.812+	1.551***	1.274***	1.320*	0.684***	0.818+	1.558***	1.279***	1.323*	0.685***	0.817+	1.558***	1.278***	1.323*
	(0.053)	(0.087)	(0.172)	(0.072)	(0.151)	(0.053)	(0.088)	(0.173)	(0.072)	(0.152)	(0.053)	(0.088)	(0.173)	(0.072)	(0.152)
37 + months	0.655***	0.878	1.291*	0.810***	0.644***	0.658***	0.890	1.304**	0.815***	0.647***	0.660***	0.888	1.305***	0.814***	0.647***
	(0.040)	(0.076)	(0.129)	(0.043)	(0.072)	(0.040)	(0.077)	(0.130)	(0.044)	(0.072)	(0.040)	(0.077)	(0.130)	(0.044)	(0.072)
Constant	0.021***	1.551	0.000***	0.004***	0.001***	0.019***	1.446	0.000***	0.004***	0.001***	0.021***	1.492	0.000***	0.004***	0.001***
	(0.008)	(0.772)	(0.000)	(0.001)	(0.001)	(0.007)	(0.708)	(0.000)	(0.001)	(0.001)	(0.008)	(0.746)	(0.000)	(0.001)	(0.001)
N	937,672	937,672	937,672	937,672	937,672	937,672	937,672	937,672	937,672	937,672	937,672	937,672	937,672	937,672	937,672
Chi²	6647	6647	6647	6647	6647	6802	6802	6802	6802	6802	6834	6834	6834	6834	6834
Adjusted R²	0.0442	0.0442	0.0442	0.0442	0.0442	0.0451	0.0451	0.0451	0.0451	0.0451	0.0453	0.0453	0.0453	0.0453	0.0453

Notes: Robust standard errors in parentheses
*** p<0.001, ** p<0.01, * p<0.05, + p<0.1

Appendix 2 **Table 5** Occupation mobility (Part 1)

	Model 1					Model 2					Model 3				
	Unemployment	Inactivity	Service Class	Working Class	Other Classes	Unemployment	Inactivity	Service Class	Working Class	Other Classes	Unemployment	Inactivity	Service Class	Working Class	Other Classes
Personality traits															
Openness to Experience	1.054*	1.149***	1.081***	1.044	1.053*	1.046	1.154**	1.080**	1.036	1.052					
	(0.022)	(0.034)	(0.023)	(0.027)	(0.028)	(0.030)	(0.060)	(0.031)	(0.035)	(0.056)					
Conscientiousness	0.932**	0.861***	1.018	1.039	1.004	0.945	0.824***	0.990	1.067	0.886*					
	(0.025)	(0.030)	(0.027)	(0.036)	(0.035)	(0.033)	(0.045)	(0.034)	(0.045)	(0.052)					
Extraversion	1.021	0.983	1.019	1.020	1.098***	1.024	1.006	1.060*	1.005	1.265***					
	(0.022)	(0.029)	(0.021)	(0.027)	(0.030)	(0.031)	(0.052)	(0.031)	(0.034)	(0.071)					
Agreeableness	1.040	1.020	0.967	0.971	0.989	1.047	0.946	0.973	0.988	0.952					
	(0.025)	(0.035)	(0.023)	(0.029)	(0.031)	(0.034)	(0.054)	(0.032)	(0.036)	(0.055)					
Neuroticism	1.059**	1.051+	1.017	1.038	1.036	1.109***	1.000	1.021	1.006	0.993					
	(0.020)	(0.028)	(0.019)	(0.024)	(0.025)	(0.030)	(0.046)	(0.027)	(0.031)	(0.046)					
Risk taking											1.029**	1.031*	1.034**	1.029*	1.084***
											(0.011)	(0.015)	(0.011)	(0.013)	(0.015)
Gender * Openness						1.015	0.997	1.002	1.019	1.004					
						(0.041)	(0.063)	(0.041)	(0.054)	(0.061)					
Gender * Conscientiousness						0.975	1.072	1.061	0.920	1.195*					
						(0.051)	(0.075)	(0.055)	(0.069)	(0.086)					
Gender * Extraversion						0.991	0.966	0.922+	1.045	0.826**					
						(0.042)	(0.061)	(0.039)	(0.058)	(0.053)					
Gender * Agreeableness						0.990	1.122	0.987	0.950	1.048					
						(0.048)	(0.081)	(0.047)	(0.061)	(0.072)					
Gender * Neuroticism						0.914*	1.074	0.990	1.087+	1.053					
						(0.035)	(0.061)	(0.037)	(0.052)	(0.057)					
Gender * Risk taking															
Demographic Indicators															
Gender *(ref. male)*	0.939	1.553***	0.904*	0.705***	1.448***	0.948	1.586***	0.909+	0.705***	1.521***	0.995	1.630***	0.947	0.747***	1.617***
	(0.052)	(0.119)	(0.045)	(0.053)	(0.108)	(0.052)	(0.126)	(0.046)	(0.054)	(0.117)	(0.053)	(0.123)	(0.046)	(0.054)	(0.119)
Age	0.907***	0.640***	1.030	1.027	0.997	0.907***	0.641***	1.031	1.027	0.999	0.908***	0.640***	1.030	1.025	1.002
	(0.016)	(0.016)	(0.022)	(0.024)	(0.023)	(0.016)	(0.016)	(0.022)	(0.024)	(0.023)	(0.016)	(0.016)	(0.022)	(0.024)	(0.023)
Age²	1.001***	1.006***	0.999***	0.999+	1.000	1.001***	1.006***	0.999***	0.999+	1.000	1.001***	1.006***	0.999***	0.999+	1.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
West Germany *(ref. East)*	0.521***	1.131	1.193***	0.801**	1.086	0.521***	1.128	1.195***	0.799**	1.091	0.525***	1.171*	1.198***	0.805**	1.103
	(0.027)	(0.088)	(0.064)	(0.055)	(0.073)	(0.027)	(0.087)	(0.064)	(0.055)	(0.074)	(0.027)	(0.090)	(0.064)	(0.055)	(0.074)
Migrant *(ref. native)*	1.227***	0.933	0.803**	1.026	0.915	1.225***	0.941	0.800**	1.028	0.915	1.224***	0.912	0.808**	1.019	0.914
	(0.074)	(0.079)	(0.059)	(0.075)	(0.074)	(0.074)	(0.080)	(0.059)	(0.075)	(0.074)	(0.073)	(0.077)	(0.059)	(0.074)	(0.073)
Children at home	1.108	0.910	0.939	1.283+	0.999	1.113	0.909	0.941	1.284+	1.000	1.111	0.906	0.915	1.254	0.960
	(0.143)	(0.122)	(0.130)	(0.187)	(0.155)	(0.143)	(0.122)	(0.131)	(0.187)	(0.155)	(0.143)	(0.121)	(0.127)	(0.183)	(0.148)
Married	0.766***	1.399***	0.945	0.975	0.923	0.765***	1.396***	0.948	0.978	0.925	0.764***	1.381***	0.939	0.979	0.927
	(0.039)	(0.114)	(0.047)	(0.065)	(0.059)	(0.039)	(0.114)	(0.048)	(0.066)	(0.059)	(0.039)	(0.113)	(0.047)	(0.066)	(0.059)
Educational attainment (ref. College or University)															
Upper secondary with occupational qualifications	0.935	1.111	0.681***	1.276	1.444**	0.939	1.107	0.679***	1.275	1.432**	0.939	1.089	0.682***	1.275	1.473***
	(0.100)	(0.157)	(0.049)	(0.249)	(0.163)	(0.100)	(0.156)	(0.049)	(0.249)	(0.162)	(0.100)	(0.153)	(0.049)	(0.249)	(0.166)
Upper secondary without occupational	0.462***	2.176***	0.966	1.428	1.170	0.462***	2.190***	0.969	1.415	1.182	0.477***	2.285***	0.979	1.426	1.211

qualifications														
(0.085)	(0.299)	(0.090)	(0.315)	(0.177)	(0.085)	(0.301)	(0.091)	(0.312)	(0.179)	(0.088)	(0.310)	(0.091)	(0.315)	(0.182)
Lower secondary with occupational qualifications														
1.080	1.115	0.488***	1.531**	1.134	1.083	1.112	0.487***	1.531**	1.128	1.071	1.065	0.486***	1.537**	1.146
(0.080)	(0.120)	(0.031)	(0.247)	(0.114)	(0.081)	(0.120)	(0.031)	(0.247)	(0.113)	(0.079)	(0.114)	(0.031)	(0.247)	(0.114)
Lower secondary without occupational qualification or less														
1.257**	1.166	0.334***	1.780***	1.050	1.255**	1.165	0.333***	1.785***	1.049	1.252**	1.113	0.332***	1.785***	1.059
(0.097)	(0.124)	(0.028)	(0.294)	(0.112)	(0.097)	(0.124)	(0.028)	(0.295)	(0.112)	(0.096)	(0.118)	(0.027)	(0.295)	(0.112)
Occupation (ref. Service occupations)														
Routine non-manual and routine														
1.417***	1.477***	0.448***	1.693***	4.919***	1.412***	1.475***	0.447***	1.696***	4.895***	1.416***	1.482***	0.445***	1.688***	4.920***
(0.094)	(0.120)	(0.031)	(0.252)	(0.389)	(0.094)	(0.120)	(0.031)	(0.252)	(0.387)	(0.094)	(0.119)	(0.031)	(0.251)	(0.388)
Self-Employed and self-employed farmers														
0.634	1.038	0.528+	0.998	3.857***	0.635	1.022	0.525+	0.988	3.807***	0.640	1.094	0.534+	0.993	3.819***
(0.228)	(0.430)	(0.177)	(0.716)	(1.008)	(0.228)	(0.424)	(0.177)	(0.710)	(0.996)	(0.230)	(0.453)	(0.179)	(0.713)	(0.996)
Skilled manual workers														
1.608***	1.393**	0.350***	11.220***	1.256+	1.605***	1.394**	0.353***	11.149***	1.285+	1.605***	1.378**	0.349***	11.286***	1.256+
(0.115)	(0.157)	(0.037)	(1.516)	(0.168)	(0.115)	(0.158)	(0.038)	(1.509)	(0.172)	(0.115)	(0.155)	(0.037)	(1.522)	(0.168)
Semi- and unskilled workers														
1.860***	1.799***	0.420***	11.439***	1.871***	1.858***	1.797***	0.420***	11.430***	1.872***	1.861***	1.792***	0.417***	11.457***	1.882***
(0.127)	(0.165)	(0.041)	(1.505)	(0.203)	(0.127)	(0.165)	(0.041)	(1.505)	(0.203)	(0.128)	(0.164)	(0.041)	(1.509)	(0.204)
Company size														
0.770***	1.409***	1.350***	0.798***	1.037	0.772***	1.409***	1.354***	0.797***	1.039	0.768***	1.395***	1.342***	0.794***	1.036
(0.041)	(0.090)	(0.054)	(0.054)	(0.063)	(0.041)	(0.090)	(0.059)	(0.054)	(0.063)	(0.041)	(0.089)	(0.058)	(0.054)	(0.062)
Public company														
0.509***	0.716***	0.690***	0.492***	0.615***	0.508***	0.717***	0.690***	0.493***	0.615***	0.515***	0.731***	0.700***	0.493***	0.623***
(0.032)	(0.051)	(0.034)	(0.041)	(0.041)	(0.032)	(0.051)	(0.034)	(0.042)	(0.041)	(0.032)	(0.052)	(0.034)	(0.041)	(0.042)
Sector (ref. Primary and secondary)														
1.134*	1.403***	1.525***	1.621***	1.815***	1.138*	1.393***	1.521***	1.615***	1.792***	1.138*	1.400***	1.522***	1.613***	1.809***
(0.060)	(0.107)	(0.083)	(0.111)	(0.139)	(0.060)	(0.106)	(0.083)	(0.110)	(0.137)	(0.060)	(0.106)	(0.083)	(0.109)	(0.139)
Experience full-time														
0.998***	0.998***	0.999	0.998**	0.999+	0.998***	0.998***	0.999	0.998**	0.999+	0.998***	0.998***	0.999	0.999**	0.999+
(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)
Experience part-time														
0.997***	0.999+	0.999	0.999	0.999	0.997***	0.999+	0.999	0.999	0.999	0.997***	0.999*	0.999	0.999	0.999
(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Unemployment experience														
1.011***	0.998	0.998	1.002+	1.004*	1.011***	0.998	0.998	1.002+	1.004*	1.011***	0.998	0.998	1.002+	1.003*
(0.001)	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)
Time periods (ref. 1 – 12 months)														
13 – 24 months														
1.522***	1.301**	1.407***	1.350***	1.496***	1.523***	1.299**	1.407***	1.350***	1.495***	1.521***	1.295**	1.405***	1.347***	1.497***
(0.089)	(0.114)	(0.093)	(0.105)	(0.120)	(0.089)	(0.114)	(0.093)	(0.105)	(0.120)	(0.089)	(0.113)	(0.093)	(0.104)	(0.120)
25 – 36 months														
0.682***	0.816+	1.421***	1.125	1.436***	0.683***	0.815+	1.421***	1.126	1.433***	0.681***	0.812+	1.419***	1.122	1.439***
(0.053)	(0.088)	(0.100)	(0.098)	(0.125)	(0.053)	(0.088)	(0.100)	(0.098)	(0.124)	(0.053)	(0.087)	(0.100)	(0.097)	(0.125)
37 + months														
0.656***	0.887	0.990	0.688***	0.890	0.658***	0.884	0.991	0.688***	0.889	0.654***	0.878	0.987	0.683***	0.892
(0.040)	(0.077)	(0.066)	(0.054)	(0.074)	(0.040)	(0.077)	(0.066)	(0.054)	(0.074)	(0.040)	(0.076)	(0.066)	(0.054)	(0.074)
Constant														
0.023***	1.771	0.006***	0.000***	0.001***	0.023***	1.692	0.006***	0.000***	0.001***	0.018***	1.473	0.005***	0.000***	0.000***
(0.008)	(0.826)	(0.003)	(0.000)	(0.000)	(0.008)	(0.791)	(0.002)	(0.000)	(0.000)	(0.007)	(0.718)	(0.002)	(0.000)	(0.000)
N	937,799	937,799	937,799	937,799	937,799	937,799	937,799	937,799	937,799	937,799	937,799	937,799	937,799	937,799	937,799
Chi²	9737	9737	9737	9737	9737	9730	9730	9730	9730	9730	9619	9619	9619	9619	9619
Adjusted R²	0.0724	0.0724	0.0724	0.0724	0.0724	0.0728	0.0728	0.0728	0.0728	0.0728	0.0719	0.0719	0.0719	0.0719	0.0719

Notes: Robust standard errors in parentheses
*** p<0.001, ** p<0.01, * p<0.05, + p<0.1

Appendix 2 Table 5 Occupational mobility (Part 2)

	Model 4					Model 5					Model 6				
	Unemployment	Inactivity	Service Class	Working Class	Other Classes	Unemployment	Inactivity	Service Class	Working Class	Other Classes	Unemployment	Inactivity	Service Class	Working Class	Other Classes
Personality traits															
Openness to Experience						1.046*	1.141***	1.073***	1.038	1.032	1.044	1.150**	1.077*	1.028	1.024
						(0.022)	(0.034)	(0.023)	(0.027)	(0.027)	(0.030)	(0.060)	(0.031)	(0.035)	(0.055)
Conscientiousness						0.931**	0.860***	1.017	1.038	1.002	0.944	0.823***	0.990	1.064	0.884*
						(0.025)	(0.030)	(0.026)	(0.036)	(0.035)	(0.033)	(0.045)	(0.034)	(0.045)	(0.052)
Extraversion						1.013	0.976	1.012	1.013	1.076**	1.022	1.003	1.056+	0.995	1.225***
						(0.022)	(0.029)	(0.021)	(0.027)	(0.030)	(0.031)	(0.052)	(0.031)	(0.034)	(0.069)
Agreeableness						1.046+	1.027	0.973	0.976	1.007	1.049	0.949	0.975	0.996	0.973
						(0.025)	(0.035)	(0.024)	(0.030)	(0.031)	(0.034)	(0.055)	(0.032)	(0.036)	(0.057)
Neuroticism						1.065***	1.058*	1.024	1.042+	1.056*	1.111***	1.003	1.024	1.012	1.014
						(0.021)	(0.029)	(0.019)	(0.024)	(0.025)	(0.030)	(0.047)	(0.027)	(0.031)	(0.048)
Risk taking	1.007	1.021	1.025	1.042**	1.145***	1.030**	1.028+	1.026*	1.025+	1.076***	1.009	1.012	1.013	1.039*	1.119***
	(0.015)	(0.025)	(0.016)	(0.017)	(0.032)	(0.011)	(0.016)	(0.012)	(0.013)	(0.015)	(0.015)	(0.026)	(0.016)	(0.017)	(0.032)
Gender * Openness											1.003	0.990	0.994	1.028	1.012
											(0.041)	(0.062)	(0.041)	(0.055)	(0.062)
Gender * Conscientiousness											0.976	1.071	1.059	0.923	1.196*
											(0.051)	(0.075)	(0.055)	(0.070)	(0.086)
Gender * Extraversion											0.979	0.957	0.917*	1.055	0.838**
											(0.042)	(0.061)	(0.039)	(0.059)	(0.054)
Gender * Agreeableness											0.998	1.130+	0.993	0.943	1.042
											(0.049)	(0.081)	(0.048)	(0.061)	(0.072)
Gender * Neuroticism											0.924*	1.081	0.997	1.082+	1.048
											(0.035)	(0.062)	(0.038)	(0.051)	(0.058)
Gender * Risk taking	1.044*	1.014	1.016	0.967	0.931*						1.041+	1.025	1.024	0.962	0.951
	(0.021)	(0.031)	(0.022)	(0.025)	(0.029)						(0.022)	(0.032)	(0.023)	(0.026)	(0.031)
Demographic Indicators															
Gender *(ref. male)*	0.798+	1.513*	0.870	0.886	2.427***	0.958	1.582***	0.918+	0.718***	1.525***	0.785*	1.418+	0.818	0.874	2.126***
	(0.093)	(0.263)	(0.107)	(0.132)	(0.477)	(0.053)	(0.122)	(0.047)	(0.054)	(0.115)	(0.095)	(0.259)	(0.102)	(0.136)	(0.424)
Age	0.909***	0.640***	1.030	1.025	1.002	0.909***	0.641***	1.032	1.028	1.002	0.909***	0.642***	1.033	1.028	1.003
	(0.016)	(0.016)	(0.022)	(0.024)	(0.023)	(0.016)	(0.016)	(0.022)	(0.024)	(0.024)	(0.016)	(0.016)	(0.022)	(0.024)	(0.024)
Age²	1.001***	1.006***	0.999***	0.999+	1.000	1.001***	1.006***	0.999***	0.999+	1.000	1.001***	1.006***	0.999***	0.999+	1.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
West Germany *(ref. East)*	0.526***	1.171*	1.199***	0.804**	1.098	0.523***	1.137+	1.197***	0.804**	1.102	0.526***	1.136	1.200***	0.799**	1.103
	(0.027)	(0.091)	(0.064)	(0.055)	(0.074)	(0.027)	(0.088)	(0.064)	(0.055)	(0.074)	(0.027)	(0.088)	(0.064)	(0.055)	(0.074)
Migrant *(ref. native)*	1.224***	0.912	0.807**	1.016	0.915	1.225***	0.931	0.800**	1.026	0.915	1.223***	0.939	0.797**	1.026	0.915
	(0.073)	(0.077)	(0.059)	(0.074)	(0.074)	(0.074)	(0.079)	(0.059)	(0.075)	(0.074)	(0.074)	(0.080)	(0.059)	(0.075)	(0.074)
Children at home	1.106	0.905	0.914	1.258	0.965	1.099	0.896	0.926	1.275+	0.958	1.099	0.893	0.925	1.280+	0.963
	(0.143)	(0.121)	(0.127)	(0.183)	(0.149)	(0.142)	(0.120)	(0.128)	(0.186)	(0.148)	(0.142)	(0.120)	(0.128)	(0.187)	(0.149)
Married	0.763***	1.381***	0.939	0.981	0.928	0.765***	1.400***	0.947	0.975	0.924	0.764***	1.395***	0.950	0.981	0.927
	(0.039)	(0.113)	(0.047)	(0.066)	(0.059)	(0.039)	(0.114)	(0.048)	(0.065)	(0.059)	(0.039)	(0.114)	(0.048)	(0.066)	(0.060)
Educational attainment (ref. College or University)															
Upper secondary with occupational qualifications	0.937	1.089	0.683***	1.277	1.473***	0.940	1.117	0.682***	1.283	1.462***	0.942	1.113	0.681***	1.285	1.450***
	(0.100)	(0.153)	(0.049)	(0.249)	(0.166)	(0.101)	(0.158)	(0.049)	(0.250)	(0.165)	(0.101)	(0.157)	(0.049)	(0.251)	(0.164)
Upper secondary without occupational	0.476***	2.283***	0.980	1.432	1.211	0.464***	2.189***	0.967	1.431	1.176	0.463***	2.202***	0.972	1.425	1.187

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
qualifications	(0.088)	(0.309)	(0.091)	(0.316)	(0.182)	(0.086)	(0.301)	(0.091)	(0.315)	(0.178)	(0.085)	(0.303)	(0.091)	(0.314)	(0.179)
Lower secondary with occupational qualifications	1.072	1.065	0.487***	1.535**	1.141	1.083	1.119	0.488***	1.534**	1.141	1.085	1.115	0.487***	1.534**	1.133
	(0.079)	(0.114)	(0.031)	(0.247)	(0.114)	(0.080)	(0.121)	(0.031)	(0.247)	(0.114)	(0.081)	(0.120)	(0.031)	(0.247)	(0.113)
Lower secondary without occupational qualification or less	1.251**	1.114	0.332***	1.782***	1.059	1.261**	1.170	0.333***	1.784***	1.051	1.257**	1.169	0.333***	1.789***	1.052
	(0.096)	(0.118)	(0.027)	(0.294)	(0.112)	(0.098)	(0.125)	(0.028)	(0.294)	(0.112)	(0.098)	(0.125)	(0.028)	(0.295)	(0.112)
Occupation (ref. Service occupations)															
Routine non-manual and routine	1.416***	1.482***	0.445***	1.688***	4.913***	1.420***	1.479***	0.449***	1.697***	4.940***	1.416***	1.477***	0.447***	1.698***	4.911***
	(0.094)	(0.119)	(0.031)	(0.251)	(0.388)	(0.094)	(0.120)	(0.031)	(0.252)	(0.389)	(0.094)	(0.120)	(0.031)	(0.253)	(0.386)
Self-Employed and self-employed farmers	0.640	1.098	0.536+	0.992	3.778***	0.632	1.038	0.525+	0.990	3.778***	0.633	1.025	0.526+	0.979	3.714***
	(0.230)	(0.455)	(0.180)	(0.712)	(0.986)	(0.227)	(0.430)	(0.177)	(0.711)	(0.986)	(0.227)	(0.425)	(0.177)	(0.703)	(0.970)
Skilled manual workers	1.610***	1.379**	0.350***	11.254***	1.251+	1.615***	1.397**	0.351***	11.253***	1.262+	1.617***	1.400**	0.355***	11.147***	1.286+
	(0.115)	(0.155)	(0.037)	(1.518)	(0.167)	(0.116)	(0.158)	(0.037)	(1.520)	(0.169)	(0.116)	(0.159)	(0.038)	(1.508)	(0.172)
Semi- and unskilled workers	1.864***	1.792***	0.417***	11.447***	1.883***	1.872***	1.808***	0.422***	11.496***	1.894***	1.874***	1.807***	0.422***	11.478***	1.899***
	(0.128)	(0.164)	(0.041)	(1.507)	(0.204)	(0.128)	(0.166)	(0.041)	(1.514)	(0.205)	(0.128)	(0.166)	(0.041)	(1.513)	(0.205)
Company size	0.768***	1.395***	1.341***	0.795***	1.039	0.770***	1.407***	1.352***	0.797***	1.036	0.772***	1.407***	1.355***	0.797***	1.039
	(0.041)	(0.089)	(0.054)	(0.054)	(0.063)	(0.041)	(0.090)	(0.059)	(0.054)	(0.062)	(0.041)	(0.090)	(0.059)	(0.054)	(0.063)
Public company	0.514***	0.731***	0.700***	0.493***	0.625***	0.512***	0.720***	0.694***	0.494***	0.621***	0.509***	0.721***	0.695***	0.495***	0.621***
	(0.032)	(0.052)	(0.034)	(0.041)	(0.042)	(0.032)	(0.051)	(0.034)	(0.042)	(0.042)	(0.032)	(0.051)	(0.034)	(0.042)	(0.042)
Sector *(ref. Primary and secondary)*	1.138*	1.400***	1.522***	1.612***	1.809***	1.132*	1.401***	1.525***	1.619***	1.804***	1.137*	1.391***	1.520***	1.612***	1.782***
	(0.060)	(0.107)	(0.083)	(0.109)	(0.139)	(0.060)	(0.107)	(0.083)	(0.110)	(0.139)	(0.060)	(0.106)	(0.083)	(0.110)	(0.137)
Experience full-time	0.998***	0.998***	0.999	0.999*	0.999	0.998***	0.998***	0.999	0.998**	0.999+	0.998***	0.998***	0.999	0.999**	0.999
	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)
Experience part-time	0.997***	0.999*	0.999	1.000	0.999	0.997***	0.999+	0.999	0.999	0.999	0.997***	0.999+	0.999	0.999	0.999
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Unemployment experience	1.011***	0.998	0.998	1.002+	1.004*	1.011***	0.998	0.998	1.002+	1.003*	1.011***	0.997	0.998	1.002+	1.003*
	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)
Time periods (ref. 1 – 12 months)															
13 – 24 months	1.522***	1.296**	1.405***	1.346***	1.497***	1.523***	1.303**	1.407***	1.351***	1.502***	1.526***	1.302**	1.408***	1.350***	1.500***
	(0.089)	(0.113)	(0.093)	(0.104)	(0.120)	(0.089)	(0.114)	(0.093)	(0.105)	(0.121)	(0.089)	(0.114)	(0.093)	(0.105)	(0.121)
25 – 36 months	0.682***	0.812+	1.419***	1.121	1.437***	0.684***	0.818+	1.423***	1.126	1.446***	0.685***	0.817+	1.423***	1.126	1.443***
	(0.053)	(0.087)	(0.100)	(0.097)	(0.125)	(0.053)	(0.088)	(0.100)	(0.098)	(0.125)	(0.053)	(0.088)	(0.100)	(0.098)	(0.125)
37 + months	0.655***	0.878	0.987	0.683***	0.891	0.658***	0.890	0.993	0.689***	0.899	0.660***	0.888	0.994	0.688***	0.897
	(0.040)	(0.076)	(0.066)	(0.054)	(0.074)	(0.040)	(0.077)	(0.066)	(0.055)	(0.074)	(0.040)	(0.077)	(0.067)	(0.054)	(0.074)
Constant	0.020***	1.547	0.005***	0.000***	0.000***	0.019***	1.442	0.005***	0.000***	0.000***	0.021***	1.488	0.006***	0.000***	0.000***
	(0.008)	(0.770)	(0.002)	(0.000)	(0.000)	(0.007)	(0.706)	(0.002)	(0.000)	(0.000)	(0.008)	(0.744)	(0.002)	(0.000)	(0.000)
N	937,799	937,799	937,799	937,799	937,799	937,799	937,799	937,799	937,799	937,799	937,799	937,799	937,799	937,799	937,799
Chi²	9604	9604	9604	9604	9604	9817	9817	9817	9817	9817	9814	9814	9814	9814	9814
Adjusted R²	0.0720	0.0720	0.0720	0.0720	0.0720	0.0728	0.0728	0.0728	0.0728	0.0728	0.0732	0.0732	0.0732	0.0732	0.0732

Notes: Robust standard errors in parentheses
*** p<0.001, ** p<0.01, * p<0.05, + p<0.1

The Apple does not Fall far from the Tree. The Intergenerational Transmission of Personality Traits

Abstract

Sociological research in intergenerational inequality has focused on explanations based on education and cognitive abilities. These elements are only able to explain part of the process of how inequalities are reproduced. In this article, I argue that personality traits can contribute to explain how success is transmitted from parents to their offspring. By drawing data from the German Socio-Economic Panel (SOEP) and using structural equation modelling, I examine how differences in social origin lead to an unequal development of children's personality traits. Differences in educational attainment and in parenting, as well as the use of external childcare, are important factors in the intergenerational transmission of personality traits.

Introduction

The reproduction of social and economic inequalities is a topic of major concern in sociology. Although early studies reported only weak connections between the income of parents and their offspring (Blau and Duncan, 1967; Becker and Tomes, 1986), recent research has shown that the former were basically underreporting this relationship due to different types of measurement error (Solon, 1992; Bowles et al, 2005). Strong social inheritance of social and economic status exists. Yet, the concrete mechanisms of how success is transmitted from one generation to the next remain unclear. Cognitive skills and educational attainment were thought to be the main determinants, but numerous empirical studies have evidenced that they are only able to account for at most half of the explanation (Bowles et al, 2005). Part of this unexplained variance can be attributed to the inclusion of personality traits (Groves, 2005). New research perspectives have started to unravel the importance that these characteristics play in explaining both intra- and intergenerational inequalities.

Studies examining the "increasing merit selection" thesis have shown that employers increasingly demand noncognitive traits over educational qualifications and cognitive abilities, especially for higher positions (Jackson, 2007; Doerfler and van de Werfhorst, 2009). Other researchers have examined the direct effects of personality traits on educational and occupational outcomes (Farkas, 2003; Almlund et al, 2011). Empirical evidence has assessed that personality traits are able to explain, amongst others, differences in wages (Mueller and Plug, 2006, Nyhus and Pons, 2005), job mobility (Jackson, 2006), and unemployment (Uysal and Pohlmeier, 2011; Guijarro Usobiaga, 2014).

The transmission of these traits is one of the factors contributing to the reproduction of inequalities (Groves, 2005; Loehlin, 2005). Although personality traits are partly genetically inherited, they are also subject to the influence of environmental stimulus (Roberts, 2006) like parental background, interventions during early childhood, and other environmental factors (Cunha et al, 2006; Cunha and Heckman, 2008). Especially parental socio-economic status seems to exert a strong impact. Parents from advantaged social background have been shown to be more successful in transmitting and fostering socially and economically desirable personality traits than lower educated parents (Bowles and Gintis, 2002; Esping-Andersen, 2009). However, the concrete factors and mechanisms through which the unequal transmission of personality traits between parents and their offspring occur still remain unclear.

The aim of this article is to contribute to the existing literature by examining how the socio-economic origin and different types of parental investments affect the development of children's personality traits. By drawing data from the German Socio-Economic Panel (SOEP) and using structural equation modeling techniques, I estimate the effects of different child-rearing practices and the use of external childcare on children's personality traits. Further on, I examine if these parental investments mediate the relationship between social origin and the children's personality traits.

Theoretical Background

Personality traits are defined as "the relatively enduring patterns of thoughts, feelings, and behaviors that reflect the tendency to respond in certain ways under certain circumstances" (Roberts, 2009: 140). Researchers have assessed that personality traits determine a wide array of socio-economic outcomes (Farkas, 2003; Almlund et al, 2011). Yet, during many years, social scientists have downplayed the importance of these traits in explaining social inequalities (Bowles et al, 2005). There are several reasons. The first one is related to the availability of appropriate data. The inclusion of psychological scales in questionnaires usually results in higher costs and can negatively affect response rates due to their length (Nyhus and Pons, 2005). Secondly, economists and sociologists were unfamiliar with psychological measures (Heineck and Anger, 2010) or were disinclined to use subjective data that might be affected by measurement error (Nyhus and Pons, 2005). Finally, the wide array of traits examined, their measures, and the mechanisms through which they operate, made it difficult to identify consistent patterns and to generalize the role of personality traits (Mueller and Plug, 2006).

The emergence of new empirical and theoretical evidence (Farkas, 2003) and the availability of better data and measurements have contributed to change this situation. The wide acceptance of the Five Factor Model in economics and sociology, also known as the Big Five (Goldberg, 1990), is one of the best examples. According to the Big Five model, every single personality trait can be mapped into one of five different dimensions (McCrae and Costa, 1999). The comprehensiveness of the model, next to the stability of personality traits in adulthood (Mueller and Plug, 2006), allows comparing findings and making generalizations about effects and mechanisms. Table 1 presents the five different dimensions and the six lower level facets that constitute each one of the five dimensions (see Costa and McCrae, 1992).

Table 1 The Big Five Dimensions and their Facets

Dimension (*Opposite in parenthesis*)	Facets	Definition
Openness to Experience (*Closeness of Experience*)	Ideas, Fantasy, Aesthetics, Actions, Feelings, Values	The degree to which a person needs intellectual stimulation, change, and variety.
Conscientiousness (*Lack of Direction*)	Competence, Order, Achievement-striving, Self-Discipline, Deliberation, Dutifulness	The degree to which a person is willing to comply with conventional rules, norms, and standards.
Extraversion (*Introversion*)	Gregariousness, Assertiveness, Activity, Excitement-seeking, Warmth, Positive Emotions	The degree to which a person needs attention and social interaction.
Agreeableness (*Antagonism*)	Trust, Altruism, Compliance, Modesty, Straight-Forwardness, Tender-Mindedness	The degree to which a person needs pleasant and harmonious relations with others.
Neuroticism (*Emotional Stability*)	Anxiety, Angry hostility, Depression, Impulsiveness, Vulnerability, Self-Consciousness	The degree to which a person experiences the world as threatening and beyond his/her control.

Source: Borghans et al (2008)

The specific ways in which personality traits are transmitted from parents to their children remain something like a black box. Scholars argue that around half of the variance of personality traits is genetically determined, while the other half is caused by environmental factors (Roberts, 2009). It is the environmental component, through which inequalities can be reproduced. What stimuli and environmental factors lead to an unequal development of children's personality traits? The sociological literature has identified different elements that influence the development of personality traits. Besides the genetic inheritance of personality traits, parental socio-economic status influences children's non-cognitive traits (Hoff et al, 2002; Esping-Andersen, 2009). These effects are however mediated by two different types of parental investments: child-rearing

practices (Lareau, 2011) and the use of external childcare provision (Carneiro and Heckman, 2003).

Genetic inheritance and environmental effects

Some scholars claim that the genetic inheritance of personality traits can be a determinant of the reproduction of inequalities (Groves, 2005; Loehlin, 2005). As children tend to resemble their parents, behavioral geneticists and psychologists have examined the degree to which children's personality traits correlate with those of their parents (Loehlin, 1992, 2005). The genetic factor in Big Five parent-child correlations accounts on average for 55 per cent of the variance (Loehlin and Rowe, 1992; Loehlin, 2005). These numbers can be affected by different types of measurements though. Variation exists depending on the age when children's personality traits are reported. Anger (2012) claims that the older the child is, the stronger the correlation between parents and children. Additionally, studies have identified that the genetic influence is lower when facets of the Big Five are used instead of higher-order traits (Conscientiousness, Extraversion, Neuroticism, Openness, and Agreeableness) (Jang et al, 2002). Although self-reported traits have been established as a valid way of measuring traits, the genetic inheritance component becomes more important if personality traits are assessed by multiple external observers (Bouchard and Loehlin, 2001).

Determining the exact magnitude of how much of the variance of personality traits is caused by genetic inheritance rather than by environmental factors is complicated and cannot be done in a direct way. Behavioral geneticists and psychologists have used two different techniques to estimate the genetic influence: twin and adoptive families studies (Sacerdote, 2010). In twin studies researchers examine the extent to which different outcomes are correlated between identical (monozygotic) twins and compare these numbers to those obtained between fraternal

(dizygotic) twins and other siblings. The extent to which identical twins share the same genes permits to establish how much of the outcomes is explained by genetic rather than by environmental factors. The second approach centers on adoptive children. The idea behind this is to establish how much of children's personality traits resemble those of their biological (genetic inheritance) and those of their social parents (environmental inheritance).

However, the results of these types of studies have to be taken with care. Twin and adoptive studies present several analytical and measurement problems that might lead to an overestimation of the genetic component (see Asendorpf, 2005 or Sacerdote, 2010 for a comprehensive review). Another problem has been to ascertain the exact magnitude of the effects attributable to shared and non-shared environments (Asendorpf, 2005). Shared environments are environmental factors that boost sibling similarities, while non-shared ones are those that make siblings differ from one another. While some authors estimate the role of shared environment to be insignificant (Loehlin, 1992; Plomin et al, 1997), others disagree (Borkenau et al, 2001). In sum, both genetic and environmental factors play a decisive role in the development of personality traits. Yet, the question of how these two components, especially the environmental one, affect the development of personality traits remains unanswered (Asendorpf, 2005).

Besides genetic inheritance, there are several environmental factors that contribute profoundly to the development of personality traits. Sociological research has highlighted the role of socio-economic status (Hoff et al, 2002; Bowles and Gintis, 2002; Bowles et al, 2005). The resource investment model has been used to explain how parental socio-economic status affects the development of children's behavioral and cognitive traits (Farkas, 2003). This theoretical approach argues that families differ in the type and amount of resources they possess. These resources, combined with their views about how to raise children, result in different types of investments that affect the formation of children's skill-sets (Esping-Andersen, 2009).

Although there are some direct effects of the socio-economic status on the children's personality traits development, most of the effects of socio-economic status are indirect, mediated by parental investments (Farkas, 2003). Child-raising practices and the use of external childcare have been identified as the most relevant factors amongst these parental investments (Carneiro and Heckman, 2003).

Parenting and external childcare provision

Following Bourdieu's idea of the importance of cultural capital in the transmission of social status (Bourdieu, 1973), many studies have examined how differences in social strata affect parenting styles (Bowles and Gintis, 1976; Kohn, 1981; Farkas, 2003; Lareau, 2011). While empirical evidence has shown that there is a widening gap between higher and lower educated families in the amount of time they devote to childcare (Bianchi et al 2004, 2006), it is the quality of childcare that matters most (Esping-Andersen, 2009). Higher educated parents spend on average 20 per cent more time in developmental activities with their children than lower educated parents do (Bonke and Esping-Andersen, 2011).

One line of research has argued that parents transmit those traits and behaviors that are required at their jobs. Kohn's work (1981) postulates that the degree of autonomy parents hold at their workplace is reflected in their parenting style. While working class parents try to inculcate in their children values like obedience, dutifulness, orderliness, and cleanliness, middle class parents prioritize fostering curiosity, self-determination and self-control (ibid: 22). In a similar vein, Bowles and Gintis (1976, 2002) explain that the same personality traits that are rewarded in school are also rewarded in the labor market. Thus, middle and upper-class parents try to foster their offspring's creativity, leadership, dependability, and critical thinking. Lower-class parents,

instead, teach their children to follow the rules and behave accordingly, downplaying entrepreneurship and other social skills (Bowles and Gintins, 2002).

Lareau's work (2011) provides a more precise approach to social class differences in children's early socialization. In her qualitative study, she explains how parents' cultural capital relates to two different types of parenting. Middle and upper-class families follow "concerted cultivation" practices, while working class parents predominantly engaged in activities following the "accomplishment of natural growth". Parents engaging in "concerted cultivation" practices pursue the development of children's behavioral and cognitive skills. In order to achieve this, parents spend a lot of time talking and reasoning with their children, fostering their educational interests and solving problems through negotiation rather than by the use of physical force (ibid, 2011: 5). Children's lives are structured, consisting of many different organized activities that require a high degree of parental involvement. Not only do working class parents not possess the time and the resources to implement this type of parenting, they do not even consider these practices to be relevant. Instead, they pursue "the accomplishment of natural growth", where parents do not reason with their children, they tell them what to do. Children spend most of their time in unstructured leisure activities, playing with their friends and relatives. Their relationship with adults is set by clear boundaries and they face clear disadvantages in schooling and in the labor market, as they lack the values and traits the offspring of advantaged families possess.

Bodovski and Farkas (2008) tested Lareau's (2011) approach and found that socio-economic status is positively and strongly correlated with concerted cultivation. Further on, their analyses evidenced that these practices are positively related to tests scores and teacher's assessment, although the indirect mediating effect of these practices is modest. The work of Kaiser and Diewald (2014) is one of the few that have focused on how the development of children's personality traits results from various socio-economic status indicators and differences

in child-rearing practices. Although they only focus on children's conscientiousness facets, their results show that while there is a direct effect of the mother's Conscientiousness, "concerted-cultivation" practices mediate the effect of education. Others scholars have identified that within the different activities that compose this type of parenting, reading to children seems to be the most determinant factor (Kiernan and Huerta, 2008).

Besides parenting, several studies have shown that the use of external childcare during early childhood has a significant impact on the development of children's cognitive and personality traits (Carneiro and Heckman, 2003; Heckman et al, 2013). Research examining early intervention studies has found that children from lower advantaged families benefit most from early education programs (Carneiro and Heckman, 2003; Cunha et al, 2006). The most well-known example is the Perry Pre-school program, where children participating in the program experienced beneficial changes in their personality traits, which in turn, improved their socio-economic achievements during adulthood (Almlund et al, 2011; Heckman et al, 2013). Yet, not all studies reported a positive influence on behavioral and socio-emotional traits. Loeb and her colleagues (2007) explain that while center-based care raises children's reading and math scores, the enrollment age and the increased number of hours children spend in external childcare has a negative influence on a set of socio-emotional behavior measures. Similar results were reported by Magnuson et al (2007), although they find that children visiting pre-kindergarten located in public schools, which are of higher quality, do not experience a negative impact on their socio-emotional behavior.

Compared to the United States, there are fewer studies on the effects of early childhood care for children's cognitive and non-cognitive development in Europe. Comparisons between the two are difficult as most of the intervention programs in the US are targeted at families living in conditions hardly observable in Europe (Wößmann, 2008). Nevertheless, similar results were obtained for the duration and intensity of the use of external childcare (Landvoigt et al, 2007).

However, the majority of European studies argue that the quality of childcare provision is the key element in children's development (see Wößmann, 2008). Evidence from psychological studies from France, Sweden, and the United Kingdom, show that the use of high-quality daycare programs has positive significant effects on the cognitive and socio-emotional growth of children, especially amongst the lower educated ones (Kamerman et al, 2003).

Figure 1 Causal model
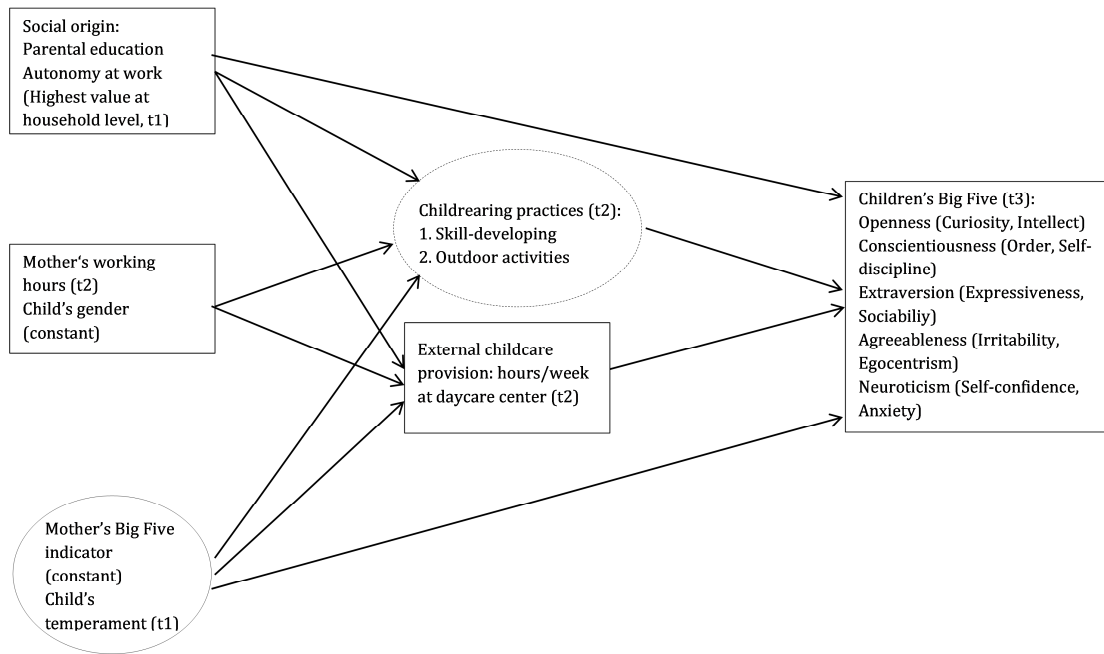
Own illustration, adapted and modified from Kaiser and Diewald (2014).

Most of the research on early childcare in Germany has focused on the classical kindergarten, the institutionalized child care setting for children between the ages of three to six (see Anders and Roßbach, 2013). Although measures for ensuring general daycare provision for children under the age of three were introduced in 2008 and extended in 2013 (Anders and Roßbach, 2013),

there are doubts about its quality. Wößmann (2008) argues that these *"Kindertagesstätten" (Kitas)* function more as playgrounds and daycare centers, rather than as skill-fostering programs. The few studies examining the effects of pre-kindergarten *Kitas* on social inequality have focused mostly on transition to higher educational tracks rather than on children's personality traits development.[14]

Temperament

The study of the Big Five personality traits development, especially in early childhood, cannot be understood without the inclusion of temperament or temperamental traits. Most developmental models have argued that the structure of personality during the first years of life differ from that of later ages (Rothbart and Bates, 1998). Temperament has been considered to be "the whole of personality traits in infancy" (Shiner and Caspi, 2003: 2) and are seen as a "set of narrower biologically based characteristics" (Nigg and Goldsmith, 1998: 389). The link between temperament and the Big Five dimensions still needs further research and clarification (Nigg and Goldsmith, 1998; Caspi et al, 2005). Yet, research has highlighted that temperament might be considered a predecessor of personality traits. Temperament maps to a considerable extent onto measures of personality traits (Caspi et al, 2005).

It is important to note that while these characteristics have shown moderate genetic influence (Bouchard and Loehlin, 2001), some scholars have argued that they might be sensitive to environmental influences (Emde and Hewitt, 2001; Caspi et al, 2005). Although the links between temperament and personality traits have not been fully clarified, the inclusion of the first is likely to improve explanations on the development of the latter. Figure 1 illustrates the

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[14] Spieß states that early childhood programs in Germany improve children's non-cognitive traits (Spieß, 2013: 340). However, the focus of her work lies on the estimation of cost-utility analyses for the implementation of this type of programs.

causal effects and the relationship between temperament and other indicators on children's personality traits.

Hypotheses

In this article I seek to test several hypotheses. First, following psychological research on the inheritance of personality traits (Asendorpf, 2005; Loehlin, 2005), I expect that part of children's personality traits will be influenced by parents' own personality traits. This relationship includes the genetic inheritance of these traits as well as some environmental factors for which I cannot control with the available data.

H1. Parents' Big Five dimensions have a direct significant effect on their offspring's personality traits.

My second hypothesis focuses on the role that parental socio-economic resources play in children's personality traits development. Several scholars have claimed that education (Bowles and Gintis, 2002; Hoff et al, 2002) and autonomy (Kohn, 1981) are key factors in children's development of labor market related traits. Research has found Conscientiousness to be the trait with the highest overall impact on job performance (Almlund et al, 2011).

H2a. Higher levels of education in the household lead to a development of children's Conscientiousness.

H2b. The degree of autonomy parents hold in their jobs has a positive effect on children's Conscientiousness.

However, these effects are going to be mediated by child-rearing practices and by the use of external childcare provision. As Lareau's work has shown, parents' education is linked to their preferences and goals regarding parenting (Lareau, 2011). Higher educated families prioritize "concerted cultivation" practices, while working class families follow the "accomplishment of natural growth". Whereas organized skill-fostering activities will have a positive influence on the

promotion of socially and economically desirable traits (Farkas, 2003), non-structured leisured activities are likely to have either a negative or no effect on children's non-cognitive growth.

> *H3. The influence of socio-economic status on the development of children's personality traits is mediated by different types of child-rearing practices.*

> *H3a. Concerted cultivation activities will have a positive effect on the development of socially desirable traits.*

> *H3b. Unstructured child-rearing practices do not influence children's personality traits positively.*

Following Heckman's research on interventions during early childhood (Carneiro and Heckman, 2003), external childcare can benefit children's development if a certain degree of quality and a stimulating environment are provided (Wößmann, 2008; Esping-Andersen, 2009). Participation in the Perry Pre-school program resulted in an improvement in externalizing behavior and on academic motivation (Heckman et al, 2013). As depicted in Almlund et al (2011), externalized behavior can be related to Agreeableness, Conscientiousness, and Neuroticism, while academic motivation taps into Openness to Experience.

> *H4. The use of daycare centers ("Kindertagesstätte") has a positive effect on the development of children's Agreeableness, Conscientiousness, Emotional Stability, and Openness to Experience.*

Data, methods and variables

To analyze the effects of the different mechanisms that lead to the development of children's Big Five personality traits I use a similar approach to the one employed by Kaiser and Diewald (2014), but introduce some substantial changes that expand the understanding of the mechanisms that lead to the development of children's personality traits. In the same vein as them, I use structural equation modeling. This technique is especially suited for testing relationships among latent variables that are composed of multiple measurements (Loehlin,

2004) like, in this case, parents' and children's personality traits, children's temperament, and different child-rearing practices. Structural equation modelling has also the advantage of allowing the testing of multiple hypotheses at once (Kline, 2005). This is done through path models, which involve the estimation of multiple regressions simultaneously (Lei and Wu, 2007). In this article I examine how parental socio-economic background, their personality traits, and the child's temperament affect both parental investments (child-rearing practices and external childcare) and children's personality traits. Additionally, I estimate the direct effects of these parental investments in the development of their offspring's Big Five characteristics. Another advantage of this modelling technique is that it allows to determine the mediating influence of parental child-rearing practices and external childcare, and to decompose the different transmission processes into direct, indirect, and total effects (Kline, 2005).

The estimation method used in this analysis is the Weighted-Least-Squares-Mean-Variance (WLSMV),[15] an extension of the Weight-Least-Squares (WLS) procedure (Muthén, et al, in press; Beauducel and Herzberg, 2006). Similarly to the WLS, the WLSMV is not restricted by multinomial distribution assumption and allows for the inclusion of categorical variables (Muthén, 1993). However, the WLS procedure requires a large amount of observations (n>1.000, Hoogland and Boomsma, 1998). As this condition is not always met, the WLSMV overcomes this problem (Beaducel and Herzberg, 2006).[16]

The data used in this article are drawn from different modules of the German Socio-Economic Panel (SOEP) (Wagner et al, 2007).[17] Most variables come from the "mother-child" questionnaires. These questionnaires, introduced for the first time in 2003, are conducted with mothers of children that are between the ages of 0 to 6 years. This module was designed to

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[15] For the analyses I have used the statistical software Mplus 7. It is one of the few packages that estimate WLSMV models.

[16] One of the limitations of using the WLSMV estimator is that it does not permit the inclusion of interaction between different variables.

[17] Waves 2001 - 2012 are used.

follow the progress of children from birth until adulthood (Schupp, 2008). Mothers are asked to report about their children's socio-emotional, physical, and behavioral development. Other questions inquire about the specific mother-child interaction and about how much time other people take care of the children. This information is then expanded with variables from the person-data files about parental socio-economic status and parents' personality traits.[18]

Endogenous variables

For the analysis I employ three groups of endogenous[19] variables. The first one is children's Big Five personality traits. Mothers, whose children are aged 5-6, are asked to report how they assess their offspring in relation to other children of the same age on a battery of ten questions, which represent facets of the Big Five (Weinert et al, 2007).[20] Each Big Five is represented by two of these items. Mothers are specifically asked to indicate on an 11-point-Likert-type scale ranging from 1 ("does not fit at all") to 11 ("fits perfectly") the degree to which the statements fit their children best. As these are not always ordered in the same direction, I invert the scale to make high values represent positive manifestations of a trait. Facets include additional variation that increases accuracy in behavior explanation. This variation is lost when we focus on the dimension (Paunonen and Ashton, 2001). Looking at the lower-order traits might be helpful to improve our understanding of the processes underlying the transmission of personality traits.

The second group of endogenous variables represents maternal child-rearing practices at the child's age of 2-3 years. Mothers are requested to indicate how often they have carried out a list of activities with their child during the last 14 days. The responses to each one of these items

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[18] Most of the data is related to the mother, although I incorporate some of the father's characteristics to generate information at the household level.

[19] Endogenous = dependent, exogenous = independent.

[20] The reliability of these measures have been shown in different articles (Pauen and Vonderlin, 2007; Weinert et al, 2007).

range from 1 "everyday", 2 "more than once a week", 3 "at least once a week", to 4 "never".[21]

The activities include stimulating ones like "telling stories or read to their children", "painting and handicraft work", "sharing picture books", "singing together", or outdoor undertakings like "going for a walk", "going to the playground", "doing groceries together" and "visit other families with children". The confirmatory factor analysis[22] grouped these activities into two different groups: "concerted cultivation" practices devoted to skill development (Lareau, 2011) and unorganized leisure activities. The results are displayed in Figure 2.

Figure 2 Child-rearing practices (confirmatory factor analysis)
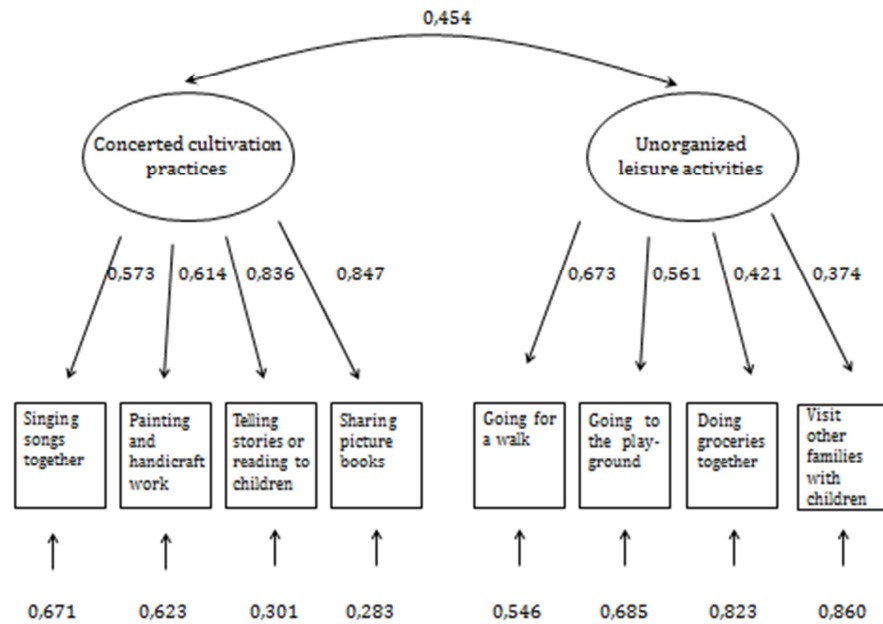
Notes: Standardized coefficients. n=621; WLSMV estimation.
Model fit: χ² 83,017, df(19); p<0,000; CFI 0,951, TLI 0,915, RMSEA 0,074 , WRMR 1,081.

The last endogenous variable is the use of external childcare. SOEP asks mothers to report how many hours per week their offspring spend at a daycare center ("Kindertagesstätte").

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[21] For a better interpretation of the results, items are inverted.
[22] The factor loadings are significant and reliable. The model fits lay within the acceptable range.

There are different factors that can influence child-rearing practices and the use of external childcare. Some of these factors also have a direct effect on the formation and development of children's personality traits. I use diverse exogenous variables to represent these factors.

Children's personality traits can be partly explained by the direct resemblance and inheritance of these traits (Loehlin, 1992). Therefore, I consider each one of the mother's Big Five personality traits: Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism.[23] The SOEP includes a reduced version of the Big Five inventory, which includes 15 of the 240 original items. The respondents have to report how they see themselves on each one of the fifteen questions on a 7-point Likert-type scale ranging from 1 to 7. In the adults' questionnaires, each dimension is captured by three different items, instead of two.[24] Again, I order all the items to represent higher values as positive ones. Figure 3 displays the factor loadings for Openness to Experience.[25] Each one of these traits is included in the complete models as latent variables.

Temperament has a biological basis (Shiner, 1998) and is considered a precursor of personality traits (Rothbart et al, 2000). I use temperament reported by mothers when their children were aged 0-1 years. The five items included in the SOEP's "mother-child questionnaire" belong to the Bayley Scales of Infant Development (Bayley, 2006). Mothers are asked to report the degree to which the following statements match their perception of their child on a 4-point Likert-type scale (1 "fits perfectly" - 4 "does not fit at all"): "my child is easily irritable and cries often", "my child is difficult to console", "I worry about my children's health",

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[23] It would be ideal to also include father's personality traits. However, their inclusion drastically reduces the number of observations and consequently presents a problem in the estimation of the model.

[24] For a more detailed explanation of the pretest procedure, reliability and validity analyses see Gerlitz and Schupp (2005). Even if some of the reliability coefficients might seem low, this does not affect the reliability of the inventory, as the alpha coefficients increase with the number of items included (see Mueller and Plug, 2006).

[25] The factor analyses for the other Big Five dimensions can be found in the Appendix.

"my child is curious and active", and "my child is happy and pleased". I recode the scale in a way that higher scores are related to less desirable expressions.

Figure 3 Mother's Openness to Experience (confirmatory factor analysis)
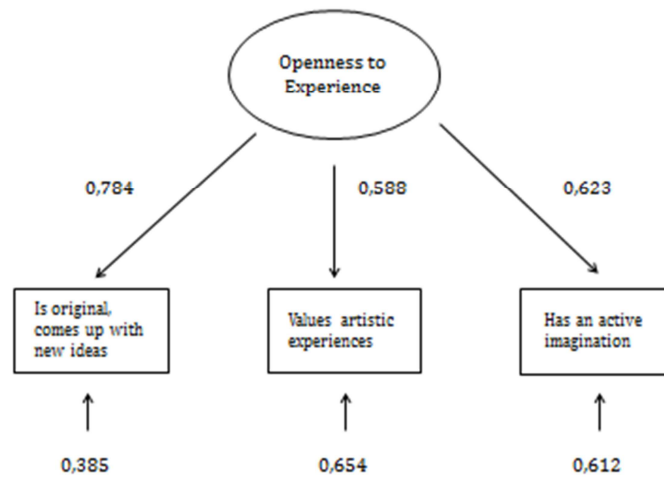
Notes: Standardized coefficients. n=621; WLSMV estimation.
Model fit: χ^2 0,000, df(0); p<0,000; CFI 1,000, TLI 1,000, RMSEA 0,000 , WRMR 0,001.

Parent's socio-economic status is measured through two variables. The first one is the degree of autonomy parents hold in their jobs. This variable ranges from 0 to 5. The second indicator of socio-economic status is parents' educational level. Educational level is operationalized in the following way: 1) Insufficient certificate, 2) compulsory elementary ("Hauptschulabschluss"), 3) secondary education, 4) full general/vocational maturity, 5) lower tertiary education, and 6) university degree. Although parenting is majorly still performed by mothers, the involvement of fathers in parenting has risen importantly (Bonke and Esping-Andersen, 2011). Thus, autonomy and educational level are measured as the highest level among the couple.

Additionally, I control for the child's gender, although gendered childcare is in decline (Bonke and Esping-Andersen, 2011), and for the mother's working hours. The latter can represent constraints in the time and type of childcare mothers provide to their children. Some studies have indicated that maternal employment can have negative effects on children's socio-emotional development (Landvoigt et al, 2007; Loeb et al, 2007; Magnuson et al, 2007). However, other scholars argue that this effect is attributable to social class, as higher educated parents are willing to sacrifice leisure time for childcare time (Esping-Andersen, 2009; Bonke and Esping-Andersen, 2011).

Figure 4 Children's temperament (confirmatory factor analysis)
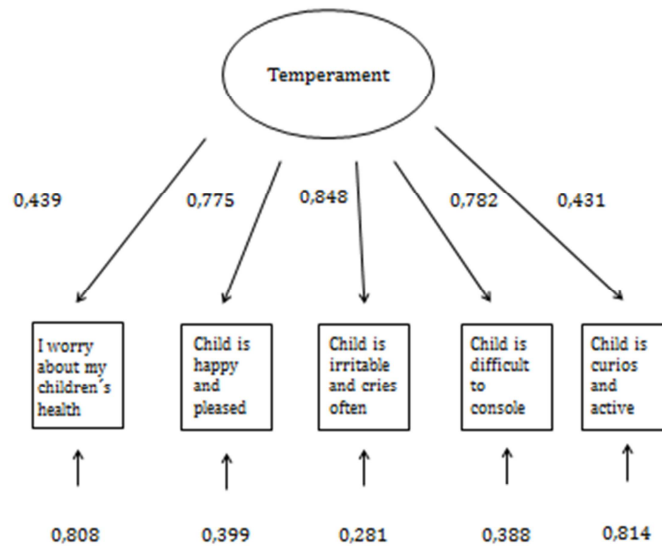
Notes: Standardized coefficients. n=621; WLSMV estimation.
Model fit: χ² 34,601, df(5); p<0,000; CFI 0,971, TLI 0,943, RMSEA 0,098 , WRMR 0,848.

Results

The tables with the results of the structural equation analyses for each of the examined traits are displayed in the Appendix.[26] To provide a clear overview, I only show the results for the traits related to Conscientiousness. Furthermore, I divide each model in three parts. The first part (Table 2) focuses on how the social background, the mother's personality traits, and the child's gender and temperament affect parental child-rearing practices and the number of hours spent at a daycare facility. The second part (Table 3) examines how these parental investments and the previously mentioned factors affect the development of children's personality traits. Finally, Tables 4.1 and 4.2 show the mediation analyses that assess the direct, the indirect – through its effects on parental investments –, and the total effect of the social origin variables on children's personality traits.

Table 2 shows the results for the first part of the structural equation model. In line with previous research (Bowles and Gintis, 2002; Hoff et al, 2002), parental education has a strong impact on how children are raised. Higher educated parents favor organized activities that lead to the behavioral development of their offspring. These "concerted cultivation" practices (Lareau, 2011) include activities like reading stories or looking at picture-books together. Higher educated families are aware of the importance of early childhood development and prefer these skill-development practices over non-organized leisure activities (Bodovski and Farkas, 2008; Lareau, 2011). The results reflect not only the type of practice, but also the frequency parents engage in these. Besides child-rearing practices, education has a positive effect on the use of external childcare. The higher the level of education within the household, the higher the amount of hours children spend at a daycare center. These results can also be related to previous findings in the literature (Esping-Andersen, 2009; Anders and Roßbach, 2013). Higher educated parents consider that pre-school attendance has long-lasting benefits for their children and thus opt for

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[26] The model fits for each of the five models lay within the acceptable range (see Muthén, 1993; Hu and Bentler, 1999).

this type of childcare, even after controlling for the amount of time mothers spend on their job. Contrary to Kohn's theory (1981), the degree of autonomy that parents exert in the workplace has barely a significant effect on the parenting style.

The amount of hours a mother spends at her job has a positive and significant effect on the use of external childcare. With women's incorporation to the labor market the demand and the use of quality external childcare rises (Esping-Andersen, 2009). Yet, maternal employment has no significant influence on the way mothers interact with their children. Previous research has explained that while working parents dispose of less time to devote to their offspring, they sacrifice leisure and sleeping time to compensate (Bonke and Esping-Andersen, 2011). Although not significantly different from zero, the results show us that the effect of working hours on competence-oriented practices is positive, while the effect on spending time together is negative. Finally, the child's temperament increases the amount of time allocated to outdoor activities and reduces the time spent in a daycare facility.

The results also show that some of the mother's personality traits influence their parenting style. Mothers who are extraverted and open to experience tend to combine leisure time with "concerted cultivation" practices. Psychological research on how the Big Five are related to parenting support these findings. Metsäpelto and Pulkkinen (2003) found that extraverted parents tend to promote more competent and sensitive care. Openness to Experience is related to a wider scale of emotional experiences and to greater concerns about child-rearing values. Open parents are thus more sensitive towards their offspring's needs and question their own behavior (ibid, 2003).

Yet, how do these differences in child-rearing practices and in the use of external childcare affect children's personality traits development? Table 3 displays the results of the second part of the structural equation model. Here I examine how parental investments and other indicators related to children's origin affect the development of various Big Five facets.

The mother's personality traits account for the biggest influence on her offspring's traits. This applies to the dimensions of Conscientiousness, Extraversion, Agreeableness, and Neuroticism. Although the available data does not allow for the inclusion of the father's personality traits, the results show that there is a strong direct transmission effect between the mother and the child. The mother's Conscientiousness has a positive significant effect on the child's orderliness and self-discipline, while her Extraversion influences her offspring's expressiveness and sociability. The more agreeable a mother is the less irritable or egocentric her child will be. In the case of Neuroticism, the less emotionally stable the mother is the more unconfident and anxious her child is. These results point toward the existence of strong inheritance mechanisms, both genetic and environmentally (Loehlin et al, 1992; Loehlin, 2005). Unfortunately, I cannot assess the magnitude of each component. Moreover, my results indicate that there is no direct transmission of Openness to Experience between the mother and her child. Finally, temperament, as a precursor of personality traits (Shiner and Caspi, 2003), has a significant effect on both Extraversion facets (curiosity and intellect) and on the child's sociability.[27]

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[27] I test possible correlations between the mother's personality traits and children's temperament, by introducing them stepwise into the model. Leaving temperament out of the model does not alter the effect or the magnitude of the mother's personality trait. However, the fit of the model is drastically reduced.

Table 2 Parental investments on Education, Autonomy, Conscientiousness, Working Hours, Temperament, Gender (Structural Equation Model (SEM))

| | Child-rearing practices | | Daycare facility |
	Competence-oriented	Unstructured leisure	
Household indicators			
Education	0,080*** (0,023)	-0,069* (0,034)	1,728*** (0,446)
	0,199	*-0,131*	*0,167*
Autonomy	0,055+ (0,029)	-0,032 (0,043)	-1,046+ (0,549)
	0,108	*-0,048*	*-0,080*
Mother's indicators			
Conscientiousness	0,050 (0,049)	0.127+ (0,075)	-0,366 (0,955)
	0,060	*0,116*	*-0,017*
Working hours	0,000 (0,002)	-0,004+ (0,002)	0,372*** (0,036)
	0,005	*-0,091*	*0,407*
Child's characteristics			
Temperament	0,024 (0,075)	0,260* (0,118)	-4,321** (1,626)
	0,018	*0,146*	*-0,123*
Gender	-0,074 (0,054)	0,032 (0,080)	0,994 (1,073)
	-0,064	*0,021*	*0,034*
Sample size: n= 621			

Unstandardized coefficients; Standard errors in parentheses, standardized coefficients in italics (Mplus 7 does not provide Standard errors and p-values for standardized coefficients). Sample size: n=621, Model fit: χ^2 409,471, df(196); p<0,000, CFI 0,928, TLI 0,909, RMSEA 0,042, WRMR 1,116; WLSMV estimation. Significance level: ***p<0,001; **p<0,01, *p<0,005, +p<0,1

Table 3 Parental investments and Conscientiousness (SEM)

| | Child's Conscientiousness | |
	Orderliness	Self-discipline
Parental investments		
Daycare facility	-0,007 (0,007)	-0,006 (0,007)
	-0,042	*-0,034*
Competence-oriented practices	-0,632* (0,289)	0,219 (0,300)
	-0,146	*0,047*
Unstructured leisure	0,884*** (0,255)	0,073 (0,244)
	0,266	*0,020*
Social Origin		
Parents' education	0,160+ (0,092)	0,284** (0,097)
	0,092	*0,152*
Parents' autonomy	0,028 (0,109)	0,162 (0,117)
	0,013	*0,068*
Other indicators		
Conscientiousness Mother	0,518*** (0,176)	0,839*** (0,198)
	0,143	*0,215*
Children's Temperament	0,307 (0,308)	0,098 (0,320)
	0,052	*0,015*
Sample size: n= 621		

Unstandardized coefficients; Standard errors in parentheses, standardized coefficients in italics (Mplus 7 does not provide Standard errors and p-values for standardized coefficients). Sample size: n=621, Model fit: χ^2 409,471, df(196); p<0,000, CFI 0,928, TLI 0,909, RMSEA 0,042, WRMR 1,116; WLSMV estimation.
Significance level: ***p<0,001; **p<0,01, *p<0,005, +p<0,1

Besides the inheritance of parental personality traits, there are other factors that influence children's Big Five facets. Parental level of education has a significant effect on the development of the child's self-discipline. In the case of orderliness education is only significant at a 10 per cent significance level. These effects were not found in Kaiser and Diewald's analyses (2014). In their article, they used the mother's level of education instead of the highest level of education within the couple. These findings point towards a possible mechanism of inequality reproduction. Conscientiousness is considered to be the trait that most importantly affects labor market outcomes (Almlund et al, 2011). In terms of social inequality this result implies that higher educated parents are able to promote certain aspects of their offspring's personality that will increase their offspring's socio-economic success in adulthood. The degree of autonomy parents enjoy at work only has a significant effect on children's calmness.

As for the different types of parental investments, the results vary. Child-rearing practices destined to foster children's behavioral and cognitive development influence children's curiosity and intellect, although the latter only at a 10 per cent significance level. Notwithstanding, when analyzing its effects on orderliness, one of the facets of Conscientiousness, the results show a negative significant influence. This finding might be related to Lareau's work (2011). The opposite occurs with unorganized leisure activities that involve going for a walk or to the playground, visiting other families, or doing groceries together. These activities foster the development of orderliness. The effects of the use of daycare on the development of children's personality traits also provide some interesting findings. Although several studies argued that increasing number of hours on daycare facilities carry negative socio-emotional consequences for children (Loeb et al, 2007; Magnuson et al, 2007), my results indicate that children who attend these early schooling institutions on a weekly base develop their sociability, their expressiveness ($p<0.10$), and their calmness ($p<0.10$). The amount of time children spend at a daycare center has, however, no effect on any of the facets of Conscientiousness.

The final part of the analysis is destined to examine if there are mediation effects between the children's social origin and the different types of parental investments. Tables 4.1 and 4.2 provide an overview of the significant results of the mediation analyses, where the effects of social origin are divided into direct, indirect, and total effects.

Most of the discovered effects for social origin on the different Big Five facets are direct effects. There are a few exceptions. In the case of curiosity, I find that the level of parental education influences the outcome indirectly. When the indirect effect is separated into the three mediating factors (use of external daycare and the two types of child-rearing practices), we observe that 60 per cent of the indirect effect can be explained through its influence on competence-developing practices, although only at a 10 per cent significance level. These skill-fostering activities seem also to act as a mediator for the mother's Openness to Experience. Even if the total indirect effect from mother's Openness to her offspring's curiosity is not significant, the specific indirect effect through these practices is. But again, it is only at a 10 per cent significance level. The opposite occurs when examining the determinants of intellect. There is a slight effect of mother's Openness on the child's intellect; however, the effect is only slightly significant (p<0.10). Finally, there is also an indirect effect from education to orderliness. This significant effect is mediated both through competence-oriented and leisure activities, but only at a 10 per cent significance level.

Table 4.1b Mediation analysis of Conscientiousness' facet: Order (SEM)

Orderliness	Education	Autonomy	Temperament	Conscientiousness Mother
Direct Effect	0,160$^+$ (0,092)	0,028 (0,109)	0,307 (0,308)	0,518*** (0,176)
	0,092	*0,013*	*0,041*	*0,143*
Indirect Effect	-0,124** (0,046)	-0,056 (0,045)	0,245* (0,119)	0,083 (0,066)
	-0,071	*-0,025*	*0,052*	*0,023*
Specific indirect effects				
through daycare center	-0,012 (0,012)	0,007 (0,008)	0,030 (0,031)	0,003 (0,009)
	-0,007	*0,003*	*0,005*	*0,001*
through competence-oriented child-rearing practices	-0,051$^+$ (0,027)	-0,035 (0,024)	-0,015 (0,048)	-0,032 (0,035)
	-0,029	*-0,016*	*-0,003*	*-0,009*
through spending Unstructured leisure activities	-0,061$^+$ (0,034)	-0,028 (0,039)	0,230 (0,124)	0,112 (0,072)
	-0,035	*-0,013*	*0,039*	*0,031*
Total Effect	0,036 (0,084)	-0,027 (0,105)	0,552$^+$ (0,291)	0,601*** (0,181)
	0,021	*-0,012*	*0,093*	*0,166*

Sample size: n= 621

Unstandardized coefficients; Standard errors in parentheses, standardized coefficients in italics (Mplus 7 does not provide Standard errors and p-values for standardized coefficients). Sample size: n=621, Model fit: χ^2 409,471, df(196); p<0,000, CFI 0,928, TLI 0,909, RMSEA 0,042, WRMR 1,116; WLSMV estimation.
Significance level: ***p<0,001; **p<0,01, *p<0,005, $^+$p<0,1

Table 4.2b Mediation analysis of Conscientiousness' facet: Self-discipline (SEM)

Self-discipline	Education	Autonomy	Temperament	Conscientiousness Mother
Direct Effect	0,284*** (0,097)	0,162 (0,117)	0,098 (0,320)	0,839*** (0,198)
	0,152	*0,068*	*0,015*	*0,215*
Indirect Effect	0,002 (0,039)	0,016 (0,025)	0,051 (0,069)	0,022 (0,037)
	0,001	*0,007*	*0,008*	*0,006*
Specific indirect effects				
through daycare center	-0,011 (0,013)	0,006 (0,008)	0,041 (0,053)	0,003 (0,008)
	-0,006	*0,003*	*0,004*	*0,001*
through competence-oriented child-rearing practices	0,018 (0,024)	0,012 (0,017)	0,011 (0,030)	0,015 (0,024)
	0,009	*0,005*	*0,001*	*0,003*
through spending Unstructured leisure activities	-0,005 (0,017)	-0,002 (0,008)	0,030 (0,108)	0,011 (0,039)
	-0,003	*-0,001*	*0,003*	*0,002*
Total Effect	0,286*** (0,088)	0,178 (0,115)	0,149 (0,303)	0,862*** (0,198)
	0,152	*0,075*	*0,023*	*0,221*

Sample size: n= 621

Unstandardized coefficients; Standard errors in parentheses, standardized coefficients in italics (Mplus 7 does not provide Standard errors and p-values for standardized coefficients). Sample size: n=621, Model fit: χ^2 409,471, df(196); p<0,000, CFI 0,928, TLI 0,909, RMSEA 0,042, WRMR 1,116; WLSMV estimation.
Significance level: ***p<0,001; **p<0,01, *p<0,005, +p<0,1

Discussion

Understanding the processes through which inequality is reproduced within families is a complex task. We know that education and cognitive skills play a non-trivial role in the reproduction of inequalities. However, they account for only half of the explanation (Bowles et al, 2005). What other factors contribute to rising social inequality? During the last decades, many scholars have been pointing directly or indirectly to the importance of personality traits (Esping-Andersen, 2009; Almlund et al, 2011). These traits have been shown to affect several socio-economic outcomes (Farkas, 2003). From a sociological point of view, these non-cognitive traits would not be relevant, if they were randomly distributed across population. However, this is not the case.

As this article shows, a non-negligible part of individual's personality traits can be explained through the influence of social origin. Besides the direct inheritance of parental personality traits, there are several factors related to the socio-economic status of parents that affect the development of the children's personality traits. Amongst these factors, parental education seems to be important. This variable influences several of children's facets directly. Furthermore, it also affects it indirectly, through different types of child-rearing practices and through the use of external childcare.

Regarding parenting practices, my results support Lareau's work (2011). Education has a significant effect on the type of parenting style preferred by parent of diverse social strata. Higher educated parents engage more in "concerted cultivation" practices, while lower educated ones spend more time in unorganized leisure activities. These practices though, also influence some of the children's personality traits. Unstructured activities have an influence on children's orderliness. As explained by different approaches, working-class families' values in parenting reflect those characteristics required at their jobs (Kohn, 1981; Bowles and Gintins, 2002). Parents engaging in "concerted cultivation" activities value the socio-emotional development of their children more. These findings might also be reflecting an intergenerational transmission of

cultural capital as Openness to Experience has been found to predict media preferences and cultural participation (Kraaykamp and van Eijck, 2005).

Another interesting finding is the effect of the amount of hours children spend on daycare centers. While studies in the US found that duration in these centers is related to negative social and emotional outcomes, my results indicate the contrary. External childcare provision improves children's social and communicative skills. Yet, the disparity of findings might be attributed to two factors: the selectivity and the quality of the daycare. The universal provision of early childcare in Germany was introduced in 2013 (Anders and Roßbach, 2013). Before then, daycare centers in Germany for children under three years were mostly privatized and costly. Thus, mostly higher educated working parents could and would afford these investments. Possible negative effects of prolonged stay might be off-set by stimulating caring at home. A competing explanation for the positive impact might be related to quality standards. German "*Kindertagesstätten*" do not provide the same stimulating and skill-fostering programs as the French "*Ecóle Materne*" (Wößmann, 2008). This might be reflected on its non-significant effects on the development of productivity-enhancing traits like self-discipline (Farkas, 2003). Yet, these centers, besides providing daily care, offer an environment for children to socialize with their peers. However, these are only tentative explanations. Besides the amount of time children spend in external daycare, information about the quality of the daycare center, staff qualifications, and the ratio between childcare professionals and children are necessary to identify and assess the underlying processes (Magnuson et al, 2007; Anders and Roßbach, 2013).

This article provides several interesting findings in the explanation of the intergenerational transmission of personality traits. However, more research and better data is needed. Besides more detailed indicators on daycare centers, it would be necessary to incorporate father's personality traits, the amount of time and the way they interact with their children, in the models. Increasing the number of observations would allow us to estimate more complex

models and test relationships between variables that the amount of data I employ does not allow to. Fortunately, the SOEP dataset provides an excellent base to inquire into the processes through which inequalities are reproduced. With the publication of each new wave, we will not only be able to follow the life trajectories of individuals from birth to adulthood, we will also have more observations. This will allow us to determine with more exactitude why the apple does not fall far from the tree.

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Appendix 1 Table 2a Parental investments on Education, Autonomy, Openness, Working Hours, Temperament, Gender (Structural Equation Model (SEM))

	Child-rearing practices		Daycare facility
	Competence-oriented	Unstructured leisure	
Household indicators			
Education	0,082*** (0,024)	-0,064* (0,032)	1,728*** (0,446)
	0,200	*-0,131*	*0,167*
Autonomy	0,057+ (0,030)	-0,030 (0,040)	-1,046+ (0,549)
	0,108	*-0,048*	*-0,080*
Mother's indicators			
Openness	0,192*** (0,041)	0.117* (0,056)	-0,441 (0,788)
	0,257	*0,131*	*-0,024*
Working hours	0,000 (0,002)	-0,004 (0,002)	0,369*** (0,037)
	0,003	*-0,082*	*0,405*
Child's characteristics			
Temperament	0,011 (0,067)	0,259* (0,106)	-4,268** (1,568)
	0,008	*0,161*	*-0,126*
Gender	-0,093 (0,056)	0,084 (0,076)	0,708 (1,070)
	-0,079	*0,060*	*0,024*

Sample size: n= 621

Unstandardized coefficients; Standard errors in parentheses, standardized coefficients in italics (Mplus 7 does not provide Standard errors and p-values for standardized coefficients). Sample size: n=621, Model fit: χ^2 369,550, df(196); p<0,000, CFI 0,939, TLI 0,924, RMSEA 0,038, WRMR 1,053; WLSMV estimation.
Significance level: ***p<0,001; **p<0,01, *p<0,005, +p<0,1

Appendix 1 Table 3a Parental investments and Openness (SEM)

	Child's Openness	
	Curiosity	Intellect
Parental investments		
Daycare facility	0,006 (0,004)	0,001 (0,005)
	0,055	*0,010*
Competence-oriented practices	0,401* (0,192)	0,417+ (0,247)
	0,142	*0,117*
Unstructured leisure	-0,177 (0,159)	-0,095 (0,213)
	-0,075	*-0,030*
Social Origin		
Parents' education	0,017 (0,063)	0,030 (0,081)
	0,014	*0,020*
Parents' autonomy	-0,007 (0,073)	0,114 (0,092)
	-0,005	*0,061*
Other indicators		
Openness Mother	0,025 (0,096)	0,021 (0,118)
	0,012	*0,008*
Children's Temperament	0,725*** (0,132)	0,850*** (0,230)
	0,187	*0,175*
Sample size: n= 621		

Unstandardized coefficients; Standard errors in parentheses, standardized coefficients in italics (Mplus 7 does not provide Standard errors and p-values for standardized coefficients). Sample size: n=621, Model fit: χ^2 369,550, df(196); p<0,000, CFI 0,939, TLI 0,924, RMSEA 0,038, WRMR 1,053; WLSMV estimation.
Significance level: ***p<0,001; **p<0,01, *p<0,005, +p<0,1

Appendix 1 Table 4.1a Mediation analysis of Openness' facet: Curiosity (SEM)

Curiosity	Education	Autonomy	Temperament	Openness Mother
Direct Effect	0,016 (0,063)	-0,007 (0,073)	0,725*** (0,192)	0,025 (0,096)
	0,014	*-0,005*	*0,187*	*0,012*
Indirect Effect	0,056* (0,026)	0,022 (0,020)	-0,069 (0,054)	0,054 (0,033)
	0,047	*0,014*	*-0,018*	*0,025*
Specific indirect effects				
through daycare center	0,011 (0,008)	-0,007 (0,006)	-0,027 (0,021)	-0,003 (0,005)
	0,009	*-0,004*	*-0,007*	*-0,001*
through competence-oriented child-rearing practices	0,034+ (0,018)	0,023 (0,016)	0,004 (0,027)	0,078+ (0,040)
	0,028	*0,015*	*0,001*	*0,036*
through spending Unstructured leisure activities	0,012 (0,011)	0,005 (0,009)	-0,047 (0,046)	-0,021 (0,021)
	0,010	*0,004*	*-0,012*	*-0,010*
Total Effect	0,072 (0,058)	0,014 (0,072)	0,656*** (0,181)	0,080 (0,088)
	0,061	*0,010*	*0,169*	*0,037*

Sample size: n= 621

Unstandardized coefficients; Standard errors in parentheses, standardized coefficients in italics (Mplus 7 does not provide Standard errors and p-values for standardized coefficients). Sample size: n=621, Model fit: χ^2 369,550, df(196); p<0,000, CFI 0,939, TLI 0,924, RMSEA 0,038, WRMR 1,053; WLSMV estimation.
Significance level: ***p<0,001; **p<0,01, *p<0,005, +p<0,1

Appendix 1 Table 4.2a Mediation analysis of Openness' facet: Intellect (SEM)

Intellect	Education	Autonomy	Temperament	Openness Mother
Direct Effect	0,030 (0,081)	0,114 (0,092)	0,850*** (0,230)	0,021 (0,118)
	0,020	*0,061*	*0,175*	*0,008*
Indirect Effect	0,043 (0,033)	0,025 (0,023)	-0,025 (0,064)	0,070+ (0,030)
	0,029	*0,013*	*-0,005*	*0,026*
Specific indirect effects				
through daycare center	0,002 (0,009)	-0,001 (0,005)	-0,006 (0,022)	-0,001 (0,002)
	0,002	*-0,001*	*-0,001*	*0,000*
through competence-oriented child-rearing practices	0,035 (0,022)	0,024 (0,019)	0,004 (0,028)	0,081 (0,051)
	0,023	*0,013*	*0,001*	*0,030*
through spending Unstructured leisure activities	0,006 (0,014)	0,003 (0,008)	-0,023 (0,056)	-0,011 (0,026)
	0,004	*0,001*	*-0,005*	*-0,004*
Total Effect	0,073 (0,073)	0,139 (0,090)	0,825*** (0,223)	0,091 (0,109)
	0,049	*0,074*	*0,170*	*0,034*

Sample size: n= 621

Unstandardized coefficients; Standard errors in parentheses, standardized coefficients in italics (Mplus 7 does not provide Standard errors and p-values for standardized coefficients). Sample size: n=621, Model fit: χ^2 369,550, df(196); p<0,000, CFI 0,939, TLI 0,924, RMSEA 0,038, WRMR 1,053; WLSMV estimation.
Significance level: ***p<0,001; **p<0,01, *p<0,005, +p<0,1

Appendix 1 Table 2b Parental investments on Education, Autonomy, Conscientiousness, Working Hours, Temperament, Gender (SEM)

	Child-rearing practices		Daycare facility
	Competence-oriented	Unstructured leisure	
Household indicators			
Education	0,080*** (0,023)	-0,069* (0,034)	1,728*** (0,446)
	0,199	*-0,131*	*0,167*
Autonomy	0,055+ (0,029)	-0,032 (0,043)	-1,046+ (0,549)
	0,108	*-0,048*	*-0,080*
Mother's indicators			
Conscientiousness	0,050 (0,049)	0.127+ (0,075)	-0,366 (0,955)
	0,060	*0,116*	*-0,017*
Working hours	0,000 (0,002)	-0,004+ (0,002)	0,372*** (0,036)
	0,005	*-0,091*	*0,407*
Child's characteristics			
Temperament	0,024 (0,075)	0,260* (0,118)	-4,321** (1,626)
	0,018	*0,146*	*-0,123*
Gender	-0,074 (0,054)	0,032 (0,080)	0,994 (1,073)
	-0,064	*0,021*	*0,034*
Sample size: n= 621			

Unstandardized coefficients; Standard errors in parentheses, standardized coefficients in italics (Mplus 7 does not provide Standard errors and p-values for standardized coefficients). Sample size: n=621, Model fit: χ^2 409,471, df(196); p<0,000, CFI 0,928, TLI 0,909, RMSEA 0,042, WRMR 1,116; WLSMV estimation.
Significance level: ***p<0,001; **p<0,01, *p<0,005, +p<0,1

Appendix 1 Table 3b Parental investments and Conscientiousness (SEM)

	Child's Conscientiousness	
	Orderliness	Self-discipline
Parental investments		
Daycare facility	-0,007 (0,007)	-0,006 (0,007)
	-0,042	*-0,034*
Competence-oriented practices	-0,632* (0,289)	0,219 (0,300)
	-0,146	*0,047*
Unstructured leisure	0,884*** (0,255)	0,073 (0,244)
	0,266	*0,020*
Social Origin		
Parents' education	0,160+ (0,092)	0,284** (0,097)
	0,092	*0,152*
Parents' autonomy	0,028 (0,109)	0,162 (0,117)
	0,013	*0,068*
Other indicators		
Conscientiousness Mother	0,518*** (0,176)	0,839*** (0,198)
	0,143	*0,215*
Children's Temperament	0,307 (0,308)	0,098 (0,320)
	0,052	*0,015*
Sample size: n= 621		

Unstandardized coefficients; Standard errors in parentheses, standardized coefficients in italics (Mplus 7 does not provide Standard errors and p-values for standardized coefficients). Sample size: n=621, Model fit: χ^2 409,471, df(196); p<0,000, CFI 0,928, TLI 0,909, RMSEA 0,042, WRMR 1,116; WLSMV estimation.
Significance level: ***p<0,001; **p<0,01, *p<0,005, +p<0,1

Appendix 1 Table 4.1b Mediation analysis of Conscientiousness' facet: Order (SEM)

Orderliness	Education	Autonomy	Temperament	Conscientiousness Mother
Direct Effect	0,160+ (0,092)	0,028 (0,109)	0,307 (0,308)	0,518*** (0,176)
	0,092	*0,013*	*0,041*	*0,143*
Indirect Effect	-0,124** (0,046)	-0,056 (0,045)	0,245* (0,119)	0,083 (0,066)
	-0,071	*-0,025*	*0,052*	*0,023*
Specific indirect effects				
through daycare center	-0,012 (0,012)	0,007 (0,008)	0,030 (0,031)	0,003 (0,009)
	-0,007	*0,003*	*0,005*	*0,001*
through competence-oriented child-rearing practices	-0,051+ (0,027)	-0,035 (0,024)	-0,015 (0,048)	-0,032 (0,035)
	-0,029	*-0,016*	*-0,003*	*-0,009*
through spending Unstructured leisure activities	-0,061+ (0,034)	-0,028 (0,039)	0,230 (0,124)	0,112 (0,072)
	-0,035	*-0,013*	*0,039*	*0,031*
Total Effect	0,036 (0,084)	-0,027 (0,105)	0,552+ (0,291)	0,601*** (0,181)
	0,021	*-0,012*	*0,093*	*0,166*

Sample size: n= 621

Unstandardized coefficients; Standard errors in parentheses, standardized coefficients in italics (Mplus 7 does not provide Standard errors and p-values for standardized coefficients). Sample size: n=621, Model fit: χ^2 409,471, df(196); p<0,000, CFI 0,928, TLI 0,909, RMSEA 0,042, WRMR 1,116; WLSMV estimation.
Significance level: ***p<0,001; **p<0,01, *p<0,005, +p<0,1

Appendix 1 Table 4.2b Mediation analysis of Conscientiousness' facet: Self-discipline (SEM)

Self-discipline	Education	Autonomy	Temperament	Conscientiousness Mother
Direct Effect	0,284*** (0,097)	0,162 (0,117)	0,098 (0,320)	0,839*** (0,198)
	0,152	*0,068*	*0,015*	*0,215*
Indirect Effect	0,002 (0,039)	0,016 (0,025)	0,051 (0,069)	0,022 (0,037)
	0,001	*0,007*	*0,008*	*0,006*
Specific indirect effects				
through daycare center	-0,011 (0,013)	0,006 (0,008)	0,041 (0,053)	0,003 (0,008)
	-0,006	*0,003*	*0,004*	*0,001*
through competence-oriented child-rearing practices	0,018 (0,024)	0,012 (0,017)	0,011 (0,030)	0,015 (0,024)
	0,009	*0,005*	*0,001*	*0,003*
through spending Unstructured leisure activities	-0,005 (0,017)	-0,002 (0,008)	0,030 (0,108)	0,011 (0,039)
	-0,003	*-0,001*	*0,003*	*0,002*
Total Effect	0,286*** (0,088)	0,178 (0,115)	0,149 (0,303)	0,862*** (0,198)
	0,152	*0,075*	*0,023*	*0,221*

Sample size: n= 621

Unstandardized coefficients; Standard errors in parentheses, standardized coefficients in italics (Mplus 7 does not provide Standard errors and p-values for standardized coefficients). Sample size: n=621, Model fit: χ^2 409,471, df(196); p<0,000, CFI 0,928, TLI 0,909, RMSEA 0,042, WRMR 1,116; WLSMV estimation.
Significance level: ***p<0,001; **p<0,01, *p<0,005, +p<0,1

Appendix 1 Table 2c Parental investments on Education, Autonomy, Extraversion, Working Hours, Temperament, Gender (SEM)

	Child-rearing practices		Daycare facility
	Competence-oriented	Unstructured leisure	
Household indicators			
Education	0,081*** (0,023)	-0,061* (0,030)	1,728*** (0,446)
	0,200	*-0,130*	*0,167*
Autonomy	0,056+ (0,029)	-0,028 (0,038)	-1,046+ (0,549)
	0,109	*-0,048*	*-0,080*
Mother's indicators			
Extraversion	0,079* (0,039)	0,175** (0,053)	-0,878 (0,797)
	0,104	*0,202*	*-0,045*
Working hours	0,000 (0,002)	-0,004 (0,002)	0,371*** (0,037)
	0,003	*-0,088*	*0,407*
Child's characteristics			
Temperament	0.023 (0,072)	0.230** (0,104)	-4,338** (1,637)
	0,017	*0,145*	*-0,123*
Gender	-0,081 (0,055)	0,075 (0,072)	0,678 (1,073)
	-0,070	*-0,057*	*0,023*
Sample size: n= 621			

Unstandardized coefficients; Standard errors in parentheses, standardized coefficients in italics (Mplus 7 does not provide Standard errors and p-values for standardized coefficients). Sample size: n=621, Model fit: χ^2 382,503, df(196); p<0,000, CFI 0,939, TLI 0,923, RMSEA 0,039, WRMR 1,077; WLSMV estimation.
Significance level: ***p<0,001; **p<0,01, *p<0,005, +p<0,1

Appendix 1 Table 3c Parental investments and Extraversion (SEM)

	Child's Extraversion	
	Expresiveness	Sociability
Parental investments		
Daycare facility	0,009[+] (0,005)	0,011[*] (0,005)
	0,063	*0,081*
Competence-oriented practices	0,291 (0,247)	-0,076 (0,207)
	0,079	*-0,023*
Unstructured leisure	-0,216 (0,240)	-0,093 (0,205)
	-0,067	*-0,031*
Social Origin		
Parents' education	-0,114 (0,084)	-0,106 (0,084)
	-0,074	*-0,076*
Parents' autonomy	0,035 (0,098)	0,049 (0,084)
	0,019	*0,029*
Other indicators		
Extraversion Mother	0,650[***] (0,139)	0,451[***] (0,234)
	0,233	*0,176*
Children's Temperament	0,393 (0,247)	0,759[***] (0,234)
	0,077	*0,162*
Sample size: n= 621		

Unstandardized coefficients; Standard errors in parentheses, standardized coefficients in italics (Mplus 7 does not provide Standard errors and p-values for standardized coefficients). Sample size: n=621, Model fit: χ^2 382,503, df(196); p<0,000, CFI 0,939, TLI 0,923, RMSEA 0,039, WRMR 1,077; WLSMV estimation.
Significance level: [***]p<0,001; [**]p<0,01, [*]p<0,005, [+]p<0,1

Appendix 1 Table 4.1c Mediation analysis of Extraversion's facet: Expressiveness (SEM)

Expressiveness	Education	Autonomy	Temperament	Extraversion Mother
Direct Effect	-0,114 (0,084)	0,035 (0,098)	0,393+ (0,247)	0,650*** (0,139)
	-0,076	*0,019*	*0,077*	*0,233*
Indirect Effect	0,053 (0,034)	0,012 (0,023)	-0,084 (0,107)	-0,023 (0,037)
	0,035	*0,007*	*-0,016*	*-0,008*
Specific indirect effects				
through daycare center	0,016 (0,011)	-0,010 (0,008)	-0,041 (0,028)	-0,008 (0,009)
	0,011	*-0,005*	*-0,008*	*-0,003*
through competence-oriented child-rearing practices	0,024 (0,021)	0,016 (0,016)	0,007 (0,021)	0,023 (0,022)
	0,016	*0,009*	*0,001*	*0,008*
through spending Unstructured leisure activities	0,013 (0,015)	0,006 (0,010)	-0,050 (0,060)	-0,038 (0,040)
	0,009	*0,003*	*-0,010*	*-0,014*
Total Effect	-0,061 (0,076)	0,048 (0,098)	0,309 (0,237)	0,627*** (0,132)
	-0,041	*0,025*	*0,060*	*0,225*

Sample size: n= 621

Unstandardized coefficients; Standard errors in parentheses, standardized coefficients in italics (Mplus 7 does not provide Standard errors and p-values for standardized coefficients). Sample size: n=621, Model fit: χ^2 382,503, df(196); p<0,000, CFI 0,939, TLI 0,923, RMSEA 0,039, WRMR 1,077; WLSMV estimation.
Significance level: ***p<0,001; **p<0,01, *p<0,005, +p<0,1

Appendix 1 Table 4.2c Mediation analysis of Extraversion's facet: Sociability (SEM)

Sociability	Education	Autonomy	Temperament	Extraversion Mother
Direct Effect	-0,106 (0,077)	0,049 (0,084)	0,759*** (0,234)	0,451*** (0,118)
	-0,064	*0,028*	*0,162*	*0,176*
Indirect Effect	0,018 (0,030)	-0,012 (0,018)	-0,071 (0,059)	-0,032 (0,032)
	0,013	*-0,008*	*-0,015*	*-0,012*
Specific indirect effects				
through daycare center	0,019+ (0,010)	-0,012 (0,008)	-0,048 (0,029)	-0,010 (0,010)
	0,014	*-0,007*	*-0,010*	*-0,004*
through competence-oriented child-rearing practices	-0,006 (0,017)	-0,004 (0,012)	-0,002 (0,008)	-0,006 (0,017)
	-0,005	*-0,002*	*-0,001*	*-0,002*
through spending Unstructured leisure activities	0,006 (0,013)	0,003 (0,007)	-0,021 (0,048)	-0,016 (0,037)
	0,004	*0,002*	*-0,005*	*-0,006*
Total Effect	-0,087 (0,068)	0,036 (0,083)	0,688*** (0,227)	0,419*** (0,117)
	-0,077	*0,021*	*0,146*	*0,164*

Sample size: n= 621

Unstandardized coefficients; Standard errors in parentheses, standardized coefficients in italics (Mplus 7 does not provide Standard errors and p-values for standardized coefficients). Sample size: n=621, Model fit: χ^2 382,503, df(196); p<0,000, CFI 0,939, TLI 0,923, RMSEA 0,039, WRMR 1,077; WLSMV estimation.
Significance level: ***p<0,001; **p<0,01, *p<0,005, +p<0,1

Appendix 1 Table 2d Parental investments on Education, Autonomy, Agreeableness, Working Hours, Temperament, Gender (SEM)

| | Child-rearing practices | | Daycare facility |
	Competence-oriented	Unstructured leisure	
Household indicators			
Education	0,081*** (0,024)	-0,064* (0,032)	1,728*** (0,446)
	0,199	*-0,131*	*0,167*
Autonomy	0,056+ (0,029)	-0,029 (0,040)	-1,046+ (0,549)
	0,108	*-0,047*	*-0,080*
Mother's indicators			
Agreeableness	0,005 (0,072)	0,121 (0,102)	-0,144 (1,479)
	0,004	*0,080*	*-0,005*
Working hours	0,000 (0,002)	-0,004 (0,002)	0,370*** (0,036)
	0,004	*-0,085*	*0,406*
Child's characteristics			
Temperament	0,039 (0,077)	0,246* (0,111)	-4,446** (1,665)
	0,028	*0,150*	*-0,128*
Gender	-0,078 (0,055)	0,079 (0,075)	0,549 (1,076)
	-0,068	*0,057*	*0,019*

Sample size: n= 621

Unstandardized coefficients; Standard errors in parentheses, standardized coefficients in italics (Mplus 7 does not provide Standard errors and p-values for standardized coefficients). Sample size: n=621, Model fit: χ² 380,679, df(196); p<0,000, CFI 0,927, TLI 0,908, RMSEA 0,039, WRMR 1,081; WLSMV estimation.
Significance level: ***p<0,001; **p<0,01, *p<0,005, +p<0,1

Appendix 1 Table 3d Parental investments and Agreeableness (SEM)

	Child's Agreeableness	
	Irritability (-)	Egocentrism (-)
Parental investments		
Daycare facility	0,011+ (0,006)	0,010 (0,007)
	0,074	*0,059*
Competence-oriented practices	0,159 (0,253)	-0,195 (0,283)
	0,042	*-0,046*
Unstructured leisure	-0,251 (0,237)	0,090 (0,259)
	-0,079	*0,026*
Social Origin		
Parents' education	0,020 (0,080)	0,083 (0,092)
	0,013	*0,049*
Parents' autonomy	-0,194* (0,095)	-0,061 (0,113)
	-0,099	*-0,028*
Other indicators		
Agreeableness Mother	0,717** (0,248)	0,629* (0,285)
	0,151	*0,119*
Children's Temperament	0,384 (0,268)	-0,013 (0,305)
	0,074	*-0,002*
Sample size: n= 621		

Unstandardized coefficients; Standard errors in parentheses, standardized coefficients in italics (Mplus 7 does not provide Standard errors and p-values for standardized coefficients). Sample size: n=621, Model fit: χ² 380,679, df(196); p<0,000, CFI 0,927, TLI 0,908, RMSEA 0,039, WRMR 1,081; WLSMV estimation.
Significance level: ***p<0,001; **p<0,01, *p<0,005, +p<0,1

Appendix 1 Table 4.1d Mediation analysis of Agreeableness' facet: Irritability (SEM)

Irritability	Education	Autonomy	Temperament	Agreeableness Mother
Direct Effect	0,020 (0,080)	-0,194* (0,095)	0,384 (0,268)	0,717** (0,248)
	0,013	*-0,099*	*0,074*	*0,151*
Indirect Effect	0,048 (0,036)	0,005 (0,024)	-0,105 (0,066)	-0,031 (0,041)
	0,031	*0,002*	*-0,020*	*-0,007*
Specific indirect effects				
through daycare center	0,019 (0,011)	-0,011 (0,009)	-0,049 (0,032)	-0,002 (0,016)
	0,012	*-0,006*	*-0,009*	*0,000*
through competence-oriented child-rearing practices	0,013 (0,021)	0,009 (0,015)	0,006 (0,016)	0,001 (0,011)
	0,008	*0,005*	*0,001*	*0,000*
through spending Unstructured leisure activities	0,016 (0,017)	0,007 (0,012)	-0,062 (0,063)	-0,030 (0,039)
	0,010	*0,004*	*-0,012*	*-0,006*
Total Effect	0,068 (0,072)	-0,189* (0,093)	0,280 (0,255)	0,686** (0,247)
	0,044	*-0,097*	*0,054*	*0,144*

Sample size: n= 621

Unstandardized coefficients; Standard errors in parentheses, standardized coefficients in italics (Mplus 7 does not provide Standard errors and p-values for standardized coefficients). Sample size: n=621, Model fit: χ² 380,679, df(196); p<0,000, CFI 0,927, TLI 0,908, RMSEA 0,039, WRMR 1,081; WLSMV estimation.
Significance level: ***p<0,001; **p<0,01, *p<0,005, +p<0,1

Appendix 1 Table 4.2d Mediation analysis of Agreeableness' facet: Egocentrism (SEM)

Egocentrism	Education	Autonomy	Temperament	Agreeableness Mother
Direct Effect	0,083 (0,092)	-0,060 (0,113)	-0,013 (0,305)	0,629* (0,285)
	0,049	*-0,028*	*-0,002*	*0,119*
Indirect Effect	-0,005 (0,039)	-0,024 (0,024)	-0,028 (0,069)	0,009 (0,037)
	-0,003	*-0,011*	*-0,005*	*0,002*
Specific indirect effects				
through daycare center	0,017 (0,012)	-0,010 (0,009)	-0,043 (0,032)	-0,001 (0,014)
	0,010	*-0,005*	*-0,007*	*0,000*
through competence-oriented child-rearing practices	-0,016 (0,023)	-0,011 (0,017)	-0,008 (0,018)	-0,001 (0,014)
	-0,009	*-0,005*	*-0,001*	*0,000*
through spending Unstructured leisure activities	-0,006 (0,017)	-0,003 (0,008)	0,022 (0,065)	0,011 (0,033)
	-0,003	*-0,001*	*0,004*	*0,002*
Total Effect	0,078 (0,082)	-0,085 (0,110)	-0,042 (0,295)	0,638** (0,281)
	0,046	*-0,039*	*-0,007*	*0,121*

Sample size: n= 621

Unstandardized coefficients; Standard errors in parentheses, standardized coefficients in italics (Mplus 7 does not provide Standard errors and p-values for standardized coefficients). Sample size: n=621, Model fit: χ² 380,679, df(196); p<0,000, CFI 0,927, TLI 0,908, RMSEA 0,039, WRMR 1,081; WLSMV estimation.
Significance level: ***p<0,001; **p<0,01, *p<0,005, +p<0,1

Appendix 1 Table 2e Parental investments on Education, Autonomy, Neuroticism, Working Hours, Temperament, Gender (SEM)

| | Child-rearing practices | | Daycare facility |
	Competence-oriented	Unstructured leisure	
Household indicators			
Education	0,081*** (0,024)	-0,064* (0,032)	1,728*** (0,446)
	0,200	*-0,131*	*0,167*
Autonomy	0,056+ (0,054)	-0,029 (0,040)	-1,046+ (0,549)
	0,108	*-0,047*	*-0,080*
Mother's indicators			
Neuroticism	0,004 (0,053)	-0,121+ (0,072)	-0,731 (1,006)
	0,004	*-0,105*	*-0,030*
Working hours	0,000 (0,002)	-0,004 (0,002)	0,371*** (0,036)
	0,002	*-0,083*	*0,406*
Child's characteristics			
Temperament	0,041 (0,073)	0,242* (0,108)	-4,637** (1,623)
	0,030	*0,148*	*-0,134*
Gender	-0,080 (0,055)	0,071 (0,075)	0,806 (1,072)
	-0,069	*0,051*	*0,027*
Sample size: n= 621			

Unstandardized coefficients; Standard errors in parentheses, standardized coefficients in italics (Mplus 7 does not provide Standard errors and p-values for standardized coefficients). Sample size: n=621, Model fit: χ² 371,022, df(196); p<0,000, CFI 0,935, TLI 0,918, RMSEA 0,038, WRMR 1,060; WLSMV estimation.
Significance level: ***p<0,001; **p<0,01, *p<0,005, +p<0,1

Appendix 1 Table 3e Parental investments and Neuroticism (SEM)

	Child's Neuroticism	
	Self-confidence	Anxiety
Parental investments		
Daycare facility	-0,006 (0,007)	0,003 (0,007)
	-0,035	*0,016*
Competence-oriented practices	0,093 (0,281)	0,059 (0,288)
	0,022	*0,014*
Unstructured leisure	0,206 (0,257)	-0,066 (0,260)
	0,059	*-0,018*
Social Origin		
Parents' education	0,062 (0,093)	0,065 (0,093)
	0,037	*0,037*
Parents' autonomy	-0,069 (0,111)	-0,002 (0,109)
	-0,032	*-0,001*
Other indicators		
Neuroticism Mother	0,708*** (0,197)	0,498* (0,199)
	0,177	*0,120*
Children's Temperament	-0,440 (0,275)	-0,015 (0,280)
	-0,077	*-0,003*
Sample size: n= 621		

Unstandardized coefficients; Standard errors in parentheses, standardized coefficients in italics (Mplus 7 does not provide Standard errors and p-values for standardized coefficients). Sample size: n=621, Model fit: χ² 371,022, df(196); p<0,000, CFI 0,935, TLI 0,918, RMSEA 0,038, WRMR 1,060; WLSMV estimation.
Significance level: ***p<0,001; **p<0,01, *p<0,005, +p<0,1

Appendix 1 Table 4.1e Mediation analysis of Neuroticism's facet: Self-confidence (SEM)

Self-confidence	Education	Autonomy	Temperament	Neuroticism Mother
Direct Effect	0,062 (0,093)	-0,069 (0,111)	-0,440 (0,275)	0,708*** (0,197)
	0,037	*-0,032*	*-0,077*	*0,177*
Indirect Effect	-0,015 (0,039)	0,005 (0,025)	0,080 (0,071)	-0,020 (0,036)
	-0,009	*0,002*	*0,014*	*-0,005*
Specific indirect effects				
through daycare center	-0,010 (0,012)	0,006 (0,008)	0,026 (0,032)	0,004 (0,008)
	-0,006	*0,003*	*0,005*	*0,001*
through competence-oriented child-rearing practices	0,008 (0,023)	0,005 (0,016)	0,004 (0,013)	0,000 (0,005)
	0,004	*0,002*	*0,001*	*0,000*
through spending Unstructured leisure activities	-0,013 (0,017)	-0,006 (0,012)	0,050 (0,067)	-0,025 (0,034)
	-0,008	*-0,003*	*0,009*	*-0,006*
Total Effect	0,047 (0,083)	-0,064 (0,109)	-0,360 (0,261)	0,688*** (0,194)
	0,028	*-0,030*	*-0,063*	*0,172*

Sample size: n= 621

Unstandardized coefficients; Standard errors in parentheses, standardized coefficients in italics (Mplus 7 does not provide Standard errors and p-values for standardized coefficients). Sample size: n=621, Model fit: χ^2 371,022, df(196); p<0,000, CFI 0,935, TLI 0,918, RMSEA 0,038, WRMR 1,060; WLSMV estimation.
Significance level: ***p<0,001; **p<0,01, *p<0,005, +p<0,1

Appendix 1 Table 4.2e Mediation analysis of Neuroticism's facet: Anxiety (SEM)

Anxiety	Education	Autonomy	Temperament	Neuroticism Mother
Direct Effect	0,065 (0,093)	-0,02 (0,109)	-0,015 (0,280)	0,498* (0,199)
	0,037	*-0,001*	*-0,003*	*0,120*
Indirect Effect	0,014 (0,039)	0,002 (0,023)	-0,026 (0,065)	0,006 (0,033)
	0,008	*0,001*	*-0,004*	*0,001*
Specific indirect effects				
through daycare center	0,005 (0,012)	-0,003 (0,007)	-0,013 (0,033)	-0,002 (0,006)
	0,003	*-0,001*	*-0,002*	*0,000*
through competence-oriented child-rearing practices	0,005 (0,023)	0,003 (0,016)	0,002 (0,013)	0,000 (0,003)
	0,003	*0,001*	*0,000*	*0,000*
through spending Unstructured leisure activities	0,004 (0,017)	0,002 (0,008)	-0,016 (0,064)	0,008 (0,032)
	0,002	*0,001*	*-0,003*	*0,002*
Total Effect	0,079 (0,084)	0,000 (0,107)	-0,041 (0,271)	0,504** (0,195)
	0,045	*0,000*	*-0,007*	*0,121*

Unstandardized coefficients; Standard errors in parentheses, standardized coefficients in italics (Mplus 7 does not provide Standard errors and p-values for standardized coefficients). Sample size: n=621, Model fit: χ^2 371,022, df(196); p<0,000, CFI 0,935, TLI 0,918, RMSEA 0,038, WRMR 1,060; WLSMV estimation.
Significance level: ***p<0,001; **p<0,01, *p<0,005, +p<0,1

Eidesstattliche Erklärung

Eidesstattliche Versicherung gemäß § 9 Absatz 1 Buchstabe e) der Promotionsordnung der Universität Mannheim zur Erlangung des Doktorgrades der Sozialwissenschaften:

1. Bei der eingereichten Dissertation mit dem Titel „Personality Traits and Social Inequality" handelt es sich um mein eigenständig erstelltes eigenes Werk.

2. Ich habe nur die angegebenen Quellen und Hilfsmittel benutzt und mich keiner unzulässigen Hilfe Dritter bedient. Insbesondere habe ich wörtliche Zitate aus anderen Werken als solche kenntlich gemacht.

3. Die Arbeit oder Teile davon habe ich bisher nicht an einer Hochschule des In- oder Auslands als Bestandteil einer Prüfungs- oder Qualifikationsleistung vorgelegt.

4. Die Richtigkeit der vorstehenden Erklärung bestätige ich.

5. Die Bedeutung der eidesstattlichen Versicherung und die strafrechtlichen Folgen einer unrichtigen oder unvollständigen eidesstattlichen Versicherung sind mir bekannt.

Ich versichere an Eides statt, dass ich nach bestem Wissen die reine Wahrheit erklärt und nichts verschwiegen habe.

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(Jan Guijarro Usobiaga)