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## Helping and Antisocial Behavior in the Workplace

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# Helping and Antisocial Behavior in the Workplace

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## Abstract

We offer a comprehensive analysis of the organizational and behavioral foundations of employees' helping and antisocial behavior as an integral part of a firm's workplace culture and working climate. Using representative employer-employee panel data of larger German private-sector firms, we document a large variation in helping and antisocial behavior across firms. Our regression results show that differences in supervisors' people skills, as well as workforce trust, social preferences, and personality traits explain these firm-level differences in helping and antisocial behavior in the workplace. Our measures are derived from established survey constructs and include preference items that have been behaviorally validated in experimental games by prior research. Together, the results corroborate the importance of both leadership quality and workforce composition for the manifestation of helpful and hostile workplace cultures.

**Keywords:** Helping, antisocial behavior, leadership, social preferences, trust, personality, human resource management practices

**JEL Classification:** D01, M14, M21, M50.

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“Few things leaders can do are more important than encouraging helping behavior within their organizations.”

Amabile et al. (2014)

## 1 Introduction

If employees help each other, firms benefit (Hamilton, Nickerson, and Owan, 2003; Grant, 2013). If employees behave antisocially, this is harmful not only to the employees’ mental and physical health and work-related motivation, but also to firm performance (Gangadharan, Grossman, and Vecci, 2020). But what explains helping and antisocial behavior within firms, as well as differences between firms? Why do some firms benefit from a high willingness among employees to help each other, while others do not - or even see high levels of antisocial behavior? Does “good” leadership and people management promote helping and reduce antisocial behavior (Amabile, Fisher, and Pillemer, 2014; Kosfeld, 2020; Hoffman and Tadelis, 2021; Alan, Corekcioglu, and Sutter, 2023; Alan et al., 2023)? How important are employees’ personality traits (Almlund et al., 2011) and economic preferences (Becker et al., 2012) such as altruism and reciprocity (Kosfeld and von Siemens, 2011)? Using a unique longitudinal data set spanning, on average, more than 1,000 German firms and 7,000 employees per wave, this paper offers a comprehensive analysis of the organizational and behavioral foundations of employees’ helping and antisocial behavior as an integral part of a firm’s workplace culture and working climate.

Our analysis is based on a representative employer-employee panel data set of larger private establishments in Germany, which is particularly appropriate to answering the above research questions.<sup>1</sup> First, our data contain explicit information from employees about mutual helping and antisocial behavior in their firm. This allows us to construct reliable proxies for both kinds of behavior at the firm level in each survey wave. Second, the data include established and validated survey measures of supervisors’ trust and understanding towards their subordinates (what we call “leadership quality”), employees’ personality traits (Big Five), as well as general trust and economic preferences (in particular social preferences, but also risk attitude and time discounting). Together, these measures enable us to investigate to what extent differences along these dimensions explain variation in helping and antisocial behavior in the workplace. Our survey design allows us to differentiate between time-variant and time-constant drivers of helping and antisocial behavior. On the one hand, leadership quality is

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<sup>1</sup>In our data, we observe establishments, which are regionally and economically separate units. In principle, a firm might therefore consist of several establishments. For simplicity and whenever there is no possibility of confusion, we use the terms “firm” and “establishment” interchangeably.

elicited in every survey wave, because leaders might rotate between firms or change their leadership skills over time. As a result, employees face leaders of different quality over their careers, which calls for continuous measurement of leadership quality. On the other hand, personality traits and economic preferences are rather stable within adults (Cobb-Clark and Schurer, 2012; Schwaba and Bleidorn, 2018; Fitzenberger et al., 2022). Hence, this information is elicited only once when an employee is first surveyed. Importantly, our preference measures are based on survey items that have been behaviorally validated for Germany, i.e., are predictive for economically relevant behavior both at the individual and at the organizational level (cf. Falk et al. (2022, 2018a) and references therein). Finally, we exploit a rich set of employee-level and establishment-level data to control for important differences in, for example, employee ability, task interdependencies, industry, firm size, and human resource management practices (Bloom and Van Reenen, 2007).

To the best of our knowledge, our study is the first to combine such rich and complementary employer-employee data to uncover the organizational and behavioral foundations of helping and antisocial behavior in the workplace. Our data cover the period from 2012 to 2019 in four survey waves, with about 800 to 1,200 firms and 6,500-7,500 employees participating in each wave. Sampled firms are randomly drawn from a matrix stratified by business sector, establishment size, and region to ensure the sample is representative of firms with more than 50 employees in the private sector. From this, a random sample of employees working in the surveyed establishments are interviewed outside their workplace, typically at home in the evening. Considering helping and antisocial behavior to be an integral expression of a workplace culture, we aggregate the data on the level of the establishment, i.e., our units of observation are establishment-level averages of a particular survey item in a given wave.

Our results document a large variation in helping and antisocial behavior across firms. The distribution of helping is left-skewed, and employees in the modal firm report helping to take place at least “often” (5-point Likert scale with response categories ranging from “never or nearly never” to “always”). In contrast, the distribution of antisocial behavior is right-skewed with a modal value between “never or nearly never” and “seldom” (same Likert scale). Comparing observed distributions to simulated distributions based on a random matching between employees and firms reveals that the observed heterogeneity between firms is larger than pure random matching would suggest, corroborating the interpretation of significantly different workplace cultures between firms. Next, as one might expect, helping and antisocial behavior are negatively correlated; but the size of the correlation on the firm level is actually rather modest ( $\rho = -0.22$ ). In fact, there exists a sizable share of firm-wave observations (17 percent) that show above-median levels in *both* types of behavior. This suggests that

helping and antisocial behavior are rather distinct forms of workplace behavior, and one is not just the absence of the other. Finally, we document a negative correlation between the level of antisocial behavior and the strength of helping norms, the latter measured by a lower coefficient of variation in the corresponding survey item.

But what explains these firm-level differences? Our first findings show that leadership quality and employee trust play major roles. Based on our preferred specification, a one SD increase in leadership quality is associated with a 0.15 SD increase in helping and a 0.36 SD reduction in antisocial behavior, respectively.<sup>2</sup> As our leadership measure varies over time, we can further explore the importance of leadership by including firm fixed effects, on the one hand, and the lagged dependent variable, on the other. The results remain robust and quantitatively very similar. Hence, leadership explains helping and antisocial behavior across and within firms. Further, employees' time-constant general trust is an almost similarly strong and significant predictor of both helping and antisocial behavior across firms, with a level of general trust that is one SD higher being associated with a 0.14 SD increase and a 0.15 SD decrease in helping and antisocial behavior, respectively.

Intriguingly, the association of time-constant Big Five personality traits and social preferences is outcome-specific. Concerning the personality traits, we find, for instance, that neuroticism and openness are strongly associated with antisocial behavior, while extraversion is predominantly correlated with helping. In detail, a one SD increase in neuroticism is associated with a 0.10 SD increase in antisocial behavior, but there is a smaller and less significant link between neuroticism and helping. Concerning extraversion, a one SD increase in firm-level extraversion is associated with a 0.05 SD increase in helping, and this correlation is significant. extraversion, however, is not significantly correlated with antisocial behavior. Finally, social preferences matter more for helping, whereas for antisocial behavior only trust is a significant antecedent. Notably, the trust coefficient shows the largest magnitude in regressions, with helping and antisocial behavior as the dependent variables.

Our results connect and add to several strands of literature. Concerning workplace interaction, several recent papers emphasize the importance of “social” or “people skills” for firm and labor market outcomes (Borghans et al., 2008; Borghans, Ter Weel, and Weinberg, 2014; Lazear, Shaw, and Stanton, 2015; Deming, 2017; Weidmann and Deming, 2021; Friebel, Heinz, and Zubanov, 2022). Based on personnel data from a large US high-tech firm, Hoffman and Tadelis (2021) show that managers with higher subordinate-ratings of “people-management skills” experience less subordinate turnover. Further, highly-rated managers are rewarded with higher promotion rates and larger salary increases.

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<sup>2</sup>The comparably stronger association of leadership with antisocial behavior is likely to be at least partly due to superiors being explicitly mentioned as a potential source of antisocial behavior in the respective survey item.

Englmaier et al. (2021) show in a large-scale field experiment that encouraging teams to select leaders positively affects team performance. Our measure of leadership quality, considering the firm leaders' trust and understanding towards their employees, can be seen as a proxy for such social skills to manage people in a given firm. We complement the above results by showing in a representative panel of German firms that variation in good people management significantly contributes to explaining firm-level differences in employees' helping and antisocial behavior in the workplace.<sup>3</sup>

Next, concerning the role of employee personality, Heckman, Stixrud, and Urzua (2006), Borghans et al. (2008), and Almlund et al. (2011) have shown that differences in personality traits, as measured by the Big Five, play a significant role in economic behavior, in particular in the labor market. We add to this research by showing that heterogeneity in the level of helping and antisocial behavior between firms can be partly attributed to personality differences in their respective workforce. Becker et al. (2012) consider the role of economic preferences, as elicited in incentivized laboratory experiments, and find that measures of personality traits and economic preferences are complementary when it comes to explaining heterogeneity in economic behavior. Our results corroborate this view by showing that personality traits and preferences explain helping and antisocial behavior differently. For example, we show that general trust and social preferences significantly explain helping when simultaneously controlling for personality traits. At the same time, neuroticism explains antisocial behavior, whereas social preferences do not. This suggests that helping and antisocial behavior are distinct types of behavior that are also influenced by different individual traits and preferences of the workforce.

Further, our empirical findings are closely related to the theoretical analysis of sorting and self-selection of employees with heterogeneous social preferences in the labor market (Kosfeld and von Siemens, 2009, 2011). While our data do not allow us to identify sorting behavior explicitly, Haylock and Kampkötter (2019), using the same data, show that the distribution of employee types across firms is consistent with self-selection according to employees' attitudes and preferences. Kosfeld and von Siemens (2009, 2011) then predict that firm outcomes in terms of cooperation and helping behavior among employees should differ, even within the same industry, and correlate with measures of social preferences on the firm level. This is exactly what the results in this paper show.<sup>4</sup>

The paper also connects to a classic literature going back to at least Alchian and Demsetz (1972), Holmstrom (1982), FitzRoy and Kraft (1986), Drago and Turnbull (1988, 1991), Itoh (1991,

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<sup>3</sup>Dur, Kvaløy, and Schöttner (2022) provide a recent theoretical analysis of leadership styles showing that, perhaps somewhat counter-intuitively, "unfriendly" leadership may also be an optimal outcome from a firm's perspective.

<sup>4</sup>Other work documenting a positive association between social preferences and the level of cooperation in a natural field context includes Rustagi, Engel, and Kosfeld (2010). Krueger and Schkade (2008) show that workers who are more gregarious tend to be employed in jobs that involve more social interactions.

1992), Kandel and Lazear (1992), and Rotemberg (1994). This literature investigates the role of team production, mutual helping, and cooperation among workers, focusing largely on the design of incentives to induce efficient effort and production decisions.<sup>5</sup> Lazear (1989) also considers the problem of antisocial behavior between workers, such as sabotage. A number of empirical studies complements this theoretical work by analyzing the effect of incentives on teamwork and cooperation with single-firm case studies or employer-employee data sets (Drago and Garvey, 1998; Knez and Simester, 2001; Berger, Herbertz, and Sliwka, 2011; Friebe et al., 2017; Deversi, Kocher, and Schwieren, 2020; Delfgaauw et al., 2022), or by documenting differences in helping behavior between individual firms from a given industry (Gittell, Von Nordenflycht, and Kochan, 2004; Encinosa, Gaynor, and Rebitzer, 2007). Our study contributes to this literature by providing the first comprehensive analysis of possible drivers of helping and antisocial behavior in the workplace, based on a representative sample of firms from a large economy that includes rich information on key firm- and employee-level variables.

Finally, our paper contributes to the recent literature on specific aspects of misbehavior in the workplace. Alan, Corekcioglu, and Sutter (2023) conduct a field experiment with Turkish firms to analyze the impact of a leadership training program on several aspects of workplace climate including antisocial behavior. They find that employees in treated companies have a lower likelihood to behave antisocially. (Folke and Rickne, 2022) show that sexual harassment, which differs systematically across firms, is a driver of pay and gender inequality in the Swedish labor market. (Boudreau et al., 2022) analyze how the propensity to report harassment in case of an apparel producer in Bangladesh could be improved via means of different experimental survey designs. We extend this literature by analyzing the organizational and behavioral foundations of helping and antisocial behavior in a representative set of firms and by disentangling the role of employees' personality traits and economic preferences in this relationship.

The remainder of this article is organized as follows. Section 2 provides a detailed description of the data we use for our analysis. Section 3 summarizes our hypotheses. In Section 4, we document the evidence for helping and antisocial behavior across firms and derive our main empirical results. We also present several robustness tests. Finally, Section 5 concludes.

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<sup>5</sup>More recent work includes Dur and Sol (2010) and Ishihara (2017).

## 2 Data

### 2.1 The Linked Personnel Panel

Our analysis is based on a unique data set, the Linked Personnel Panel (LPP), which constitutes a longitudinal linked employer-employee data set that is representative for German establishments in the private sector with at least 50 employees covered by social security (Kampkötter et al., 2016; Haylock and Kampkötter, 2019; Ruf et al., 2020).<sup>6</sup> The LPP links a series of variables on the establishment level with rich employee-level information on important worker and job characteristics. We analyze the four available survey waves from 2012/13, 2014/15, 2016/17, and 2018/19.

The employer survey of the LPP covers between 769 and 1,219 establishments per wave. The sampling started in 2012 with the establishment survey, which was drawn from the IAB establishment panel wave of 2011, a large-scale annual survey of nearly 16,000 German establishments. To ensure the data set is representative, a stratified disproportionate sampling approach was used, where establishments were randomly drawn from a matrix stratified by business sector, establishment size, and region.<sup>7</sup> From an adjusted gross sample of 1,705 establishments, 1,219 valid LPP establishment interviews could be realized, leading to a response rate of 72%.

The first LPP employee survey was launched in December 2012 based on a selection of establishments that had been interviewed in the initial LPP employer survey. The main selection criteria were the stated willingness of establishments to participate in the 2014 wave of the LPP employer survey, and a workforce of at least 50 employees liable to social security contributions, as documented in the administrative data. From 869 establishments, a random sample of employees was drawn in a disproportionate manner, stratified by establishment size to include not more than 10% of an establishment's workforce in the survey. Larger establishments had smaller sampling probabilities to avoid the survey being dominated by a few large establishments. Importantly, the random sampling of employees based on administrative social security data mitigated potential selection effects often present in survey-data research. In each wave, between 6,500 and 7,500 individuals, aged between 18 and 74, were interviewed at home via telephone (CATI) or, in a few cases in survey wave four, via web interface (CAWI). These interviews took place outside the work environment at different dates, typically in the evening at home, ensuring that respondents working in the same firm were interviewed

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<sup>6</sup>Besides public administration, charity organizations, agriculture, forestry, and fishery are also excluded. The data set is available via the Research Data Centre (FDZ) of the German Federal Employment Agency at the Institute for Employment Research (IAB). The DOI is: DOI: 10.5164/IAB.LPP1819.de.en.v1.

<sup>7</sup>Details on the sampling matrices are provided in Bellmann et al. (2015).



independently of each other and of their supervisors.

In the later survey waves 2 to 4, the LPP sample consisted of two groups. First, the employee survey primarily targeted panel cases, i.e., individuals, who were surveyed in the previous wave and explicitly expressed their consent to be surveyed again. Further, they must work in an establishment with a valid LPP employer survey interview in the corresponding wave. In the second group, the refreshment sample, employees from panel establishments were oversampled in case only a few or no employee interviews were available in the previous wave, in order for the sample to remain representative. For employees whose establishments were new to the LPP survey, a sample was drawn as described above. On average, 39% of employee-wave observations come from the refreshment sample.

In both surveys, response rates were comparatively high: 79% for the employer and 57% for the employee survey, on average. Moreover, there were no significant selection effects on panel participation. This, together with its careful implementation ensuring representativeness on the firm level, as well as the use of established survey items on the employee level, make the LPP an ideal data source for our research question.

## 2.2 Employee Survey Measures

Our employee survey measures are based on a rich set of validated and commonly used constructs, either from experiments, surveys, or management research (Patterson et al., 2005; Kim and Leung, 2007; Becker et al., 2012; Falk et al., 2018a, 2022). In the following, we describe these measures in detail and document their source.<sup>8</sup> Note that, in our main empirical analysis, we collapse all individual-level variables to the firm-wave level. Specifically, we take equally-weighted averages of firm-wave-cells with at least three observations.<sup>9</sup>

### 2.2.1 Helping and Antisocial Behavior

We measure *Helping* with two items in the LPP employee survey: *offering help* to colleagues (“How often do you offer your colleagues help?”), and *receiving help* from colleagues (“How often do you receive support or help from your colleagues if you ask?”). We measure *antisocial behavior* with one item referring to corresponding behavior by colleagues and superiors (“How often do you feel wrongly

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<sup>8</sup>An overview of all employee-level survey items, including their original wording, is presented in Table A.1 in the Appendix.

<sup>9</sup>At the 10th percentile, we observe about 3 employees per firm-wave cell, at the 50th percentile 6, at the 90th percentile 18, and at the 99th percentile 38 employees. The average number of employees per firm-wave cell is 9. Further, the number of employees sampled per firm is increasing in firm size.

criticized, harassed, or denounced by your colleagues or superiors?”). Both receiving help and antisocial behavior are based on the Copenhagen Psychosocial Questionnaire (COPSOQ), which has been used in more than 40 countries (Burr et al., 2019). For all three items, a 5-point Likert scale is applied with response categories ranging from “never or nearly never”, “seldom”, “sometimes”, “often” to “always”. Helping and antisocial behavior are asked repeatedly over all survey waves. All variables are standardized with zero mean and unit variance before entering the regressions.

A first analysis at the individual level shows that the two helping items are strongly and positively correlated. The Spearman correlation coefficient between help offered and help received across all waves is 0.54 and significant at the 1% level. This correlation remains very stable over time, ranging from 0.52 to 0.55. Further, a large share of respondents engage in mutual help, i.e., they offer help when asked and receive help if they ask. Precisely, responses fall into the two uppermost categories “often” and “always” in 86.7% of person-year observations with respect to help offered, 85.7% with respect to help received, and 82.3% with respect to the average of the two items.<sup>10</sup> Because individual helping behavior is closely linked to the helping behavior of those with whom an employee interacts, we take the equally-weighted average of the two helping items as our *helping index* for respondent  $i$  in wave  $t$ .<sup>11</sup>

The Spearman correlation between the helping index and antisocial behavior at the individual level is significant at the 1% level, but rather small in magnitude with a value of -0.26 across all waves. This correlation is stable over time, ranging from -0.23 to -0.27, all significant at the 1% level. Thus, while correlated, the two constructs of helping and antisocial behavior seem to measure somewhat different dimensions of interpersonal behavior at the workplace. As we will discuss further below, they are not simply direct opposites.

## 2.2.2 Leadership Quality

Employee assessment of leadership quality in their establishment is elicited repeatedly in each survey wave. Similar to Hoffman and Tadelis (2021), we measure good leadership or people management by constructing an equally-weighted *leadership quality* measure based on the well-established and validated Organizational Climate Measure (Patterson et al., 2005). In detail, we use the following two items from the supervisory support scale: *supervisor trust* and *supervisor understanding*. Respondents

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<sup>10</sup>One might argue that social desirability bias is a concern for help offered. However, the distributions of help offered and help received are very similar (Figure A.6 and Table A.2). Further, our results also hold when only focusing on help received as the dependent variable (Section 4.6).

<sup>11</sup>In our additional robustness tests, we replicate all results for each helping item separately, showing that the associations are about twice as large for help received than for help offered. See Section 4.6 for details.

rate each item on a 5-point Likert scale, with response categories ranging from “does not apply at all” to “fully applies”.

It is important to ask *which* supervisors the employees are rating in their workplace, i.e., direct supervisors or supervisors in general. Hoffman and Tadelis (2021) focus primarily on ratings of direct supervisors, as they aggregate different ratings of the same supervisor. Our leadership items *supervisor trust* and *supervisor understanding* both ask employees to rate all supervisors at their establishment, and not just their direct supervisor. Because the leadership variable refers to supervisors in the firm in general, and not only to the direct supervisor in one’s team, our results reflect the overall leadership quality in the firms of interest. This further supports aggregation of the leadership variable to the establishment level. Hence, our study complements this literature by measuring the employees’ perception of the leadership quality in general within a given firm and by comparing this leadership quality across firms.

### 2.2.3 Personality Traits, Social Preferences, and Trust

To assess an employee’s personality, we apply the *Big Five personality traits*, which we measure with the Big Five inventory short scale (16-item variant) as in the German Socio-Economic Panel (SOEP) (Gerlitz and Schupp, 2005). This scale has been used successfully, for instance, by Dohmen et al. (2008, 2010) and Becker et al. (2012).

Next, we apply a set of survey measures of economic preferences that have been behaviorally validated for Germany both in the lab and in the field (Becker et al., 2012; Falk et al., 2022), i.e., that have been shown to correlate significantly with behavior in corresponding experimental games and relevant outside-lab contexts. Precisely, we elicit *positive reciprocity* and *negative reciprocity* by two items from the Preference Survey Module (PSM) of Falk et al. (2022), with one item also being used in the SOEP. *Altruism* is similarly elicited by a single item from the PSM.

Finally, we measure *general trust* by two of the three items that are commonly used in the SOEP (Dohmen et al., 2008; Naef and Schupp, 2009). Importantly, these items measure the trust employees generally hold in other people, not only in their workplace colleagues.

As personality traits and preferences are considered to be rather stable for working-age adults (Cobb-Clark and Schurer, 2012; Schwaba and Bleidorn, 2018; Fitzenberger et al., 2022), they are asked only once, when we survey an employee for the first time. For the regression analyses, we impute these values into all subsequent waves where we observe the same individual.

## 2.3 Controls

We include a rich set of employee- and establishment-level control variables in the regressions. On the employee level, a key challenge is to control for differences in *employee ability*, as these are likely to be associated with both individual demand for helping and supply of helping. In addition to using the information on employee education (see below), a notable feature of our data is that we can merge individual AKM/CHK fixed effects (Abowd, Kramarz, and Margolis, 1999; Card, Heining, and Kline, 2013) to the LPP, which have also been used, for instance, by Bender et al. (2018). These fixed effects are calculated using a different data set, namely the full sample of German social security data (the IAB Employment History File (BEH)) for the period 2010-2017, thereby extending the procedure by Card, Heining, and Kline (2013), and covering most of our sample period (Bellmann et al., 2020).<sup>12</sup> The estimated fixed effects are imputed across all individual observations, i.e., the individual fixed effect for 2010-2017 is used across all survey waves for an observed individual.

We next include information about an employee’s level of *education*. We create dummies for six school-education categories (no school certificate, 9th grade (Hauptschule), 10th grade (Realschule), university of applied sciences entrance qualification (Fachhochschulreife), higher education entrance qualification (Abitur), and other) and seven vocational and university educational categories (none, apprenticeship, trade school, master craftsman, university of applied sciences degree, university degree, and other). Further, we control for *gender*, *age* categories (under 30, 30 to 40, 41 to 50, and above 50), an indicator for having a *life partner*, and an indicator for *living alone*. We also control for an employee’s *risk attitude*, *time preferences*, and *self-efficacy*. Risk attitude is measured using a single SOEP item that has been shown to predict risk-taking in experimental lottery choices (Dohmen et al., 2011). We measure time preferences using two items from the PSM (Falk et al., 2022). We elicit self-efficacy with the ASKU self-efficacy scale from Beierlein et al. (2013), which includes three items measured on a five-point Likert scale.

To control for differences in an employee’s job characteristics, we include individual-level information about *task interdependencies*, which is elicited by two items asking whether an employee’s tasks depend on the input of colleagues and whether colleagues’ tasks depend on the employee’s own task fulfillment. Finally, we include an *interview method* dummy (CATI vs. CAWI, with the latter being the base category).

We also elicit structural firm characteristics originating from the employer survey. These firm-level controls include information about *industry* (manufacturing; metal, electronics, and automotive;

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<sup>12</sup>Detailed information about the LPP-ADIAB is provided via DOI: 10.5164/IAB.FDZD.1907.en.v1.

retail, logistics, and media; company-related and financial services; IT, communication, and other services; health and social services), *region* (east, south, west, north), *establishment size* (less than 50 employees, 50 to 99 employees, 100 to 249, 250 to 499, and more than 500),<sup>13</sup> as well as *ownership* type (family firm, management, investor or dispersed ownership, (partly) state-owned, and other types). Additionally, we include survey-wave fixed effects.

Next, establishment managers provide information about the use of *human resource management (HRM) practices* in each wave of the employer survey. These items closely follow the spirit of recent, large-scale management surveys such as the World Management Survey or the Management and Organizational Practices Survey (Bloom and Van Reenen, 2007, 2010; Bender et al., 2018; Bloom et al., 2019). Following Englmaier, Hofmann, and Wolter (2022), we reduce the dimensionality of management practices by clustering them into management styles. By means of a Latent Dirichlet Allocation (Blei, Ng, and Jordan, 2003), the authors identify two management styles: *structured management* (style 1) and management that focuses on *employee training* (style 2). They base their unsupervised learning approach on 49 management practices from the Linked Personnel Panel, the same data set we use in our paper. These management practices include, for instance, performance appraisal systems, written target agreements, employee feedback talks, (career) development plans, annual employee surveys, consequence management, and performance pay. In our analyses, we include a dummy variable that takes the value 1 for style 1 (structured management style) and 0 for style 2 (training-oriented management style).<sup>14</sup>

### 3 Hypotheses

How do we expect leadership quality, personality, social preferences, and general trust to be related to helping and antisocial behavior in the workplace? With respect to leadership, Kosfeld (2020) shows that leader behavior based on trust and fairness induces prosocial behavior among followers. Such leadership behavior may also signal that helping is profitable and an advantageous social norm (Hermalin, 1998; Potters, Sefton, and Vesterlund, 2007; Sliwka, 2007; Danilov and Sliwka, 2017). Further, leaders are often responsible for rewarding desirable and sanctioning undesirable behavior, thereby fostering prosocial and cooperative behavior and reducing antisocial behavior (Kosfeld and

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<sup>13</sup>Some of the smallest establishments may shrink in size over time and are then allocated to the category "less than 50 employees".

<sup>14</sup>Importantly, our main results with regard to the role of leadership, personality, and preferences do not depend on the clustering. Our results are very similar if we include management practices individually. However, management practices themselves are significantly associated with helping and antisocial behavior only if we cluster them into the two different styles. More detailed results are available upon request.

Rustagi, 2015). We therefore predict a positive correlation between our leadership measure, which is based on supervisor trust and understanding, and the level of helping in firms, as well as a negative correlation between the leadership measure and the level of antisocial behavior.

Concerning the relationship between personality traits and helping, laboratory experiments by Kagel and McGee (2014) and Proto, Rustichini, and Sofianos (2019) show that agreeableness is associated with cooperative tendencies like helping. Extraverted employees are more communicative and sociable, and openness to experience relates to curiosity and willingness to engage in team processes. Therefore, both extraversion and openness should also promote helping. Neurotic individuals are overly concerned with envy, insecure, anxious, and generally worried about themselves; this likely reduces the willingness to engage in mutual helping with colleagues. We therefore predict that helping is positively correlated with agreeableness, openness, and extraversion, and negatively correlated with neuroticism. With respect to antisocial behavior, we expect less antisocial behavior among more agreeable employees. Further, neuroticism is a possible candidate to be positively correlated with antisocial behavior in a given firm because it could easily be associated with misunderstandings and conflicts between employees.

Concerning helping and social preferences, positive reciprocity generally describes the willingness to return a favor (Dohmen et al., 2009), and altruism captures the unconditional willingness to support others (Andreoni, 1990; Fehr and Fischbacher, 2003). Both types of social preferences should be positively related to helping almost by definition. Field studies indeed show that differences in prosocial preferences are significantly associated with cooperative behavior on both the individual and the group level (Rustagi, Engel, and Kosfeld, 2010; Falk et al., 2018a). Further, theory suggests that individuals may sort into different firms based on own and expected firm-level social preferences, thereby creating different organizational cultures of cooperation (Kosfeld and von Siemens, 2009, 2011). This is corroborated by lab evidence (Gächter and Thöni, 2005; Brekke et al., 2011; Bauer, Kosfeld, and von Siemens, 2021). We thus predict a positive correlation between social preferences and helping, particularly for altruism and positive reciprocity. We also expect altruism to correlate negatively with antisocial behavior, as altruistic individuals dislike inflicting harm on others. Positive reciprocity characterizes behavior in response to the kindness of others, as opposed to their unkind or antisocial behavior. Negative reciprocity might refer more to the retaliation of antisocial behavior. Dohmen et al. (2009) show that positive and negative reciprocity are only weakly correlated. Thus, we would expect negative, rather than positive, reciprocity to correlate with antisocial behavior in the workplace.

Finally, concerning the relationship between the employees' level of general trust and helping

in firms, the existing literature suggests that trust should be positively associated with cooperation in general and in organizations (see La Porta et al. (1997) and the references therein). For example, individuals might be more willing to offer help if they trust their colleagues to help them if needed. And employees might only ask for help only if they trust others to do the work properly. Trust differs from social preferences because it additionally captures the belief about being able to rely on others (Fehr, 2009). Gächter et al. (2012) and Miettinen et al. (2020) show that beliefs about the cooperation of others are indeed a positive predictor of one’s own cooperation. We therefore expect a positive correlation between trust and helping. For antisocial behavior, we predict the association to be negative, as colleagues who do not trust each other are more likely to end up in conflict. For example, if an employee distrusts her colleagues and consequently behaves in a controlling and uncooperative way, this could lead to a vicious circle of antisocial behavior.

## 4 Results

In our empirical analysis, we average all individual-level variables on the firm level in each survey wave. Hence, our unit of observation is firm  $f$  in survey wave  $t$ . Remember, the equally-weighted firm-wave averages are calculated for establishments with at least three observations per wave. By doing so, we not only reduce measurement error that may occur at the individual level, such as common method bias, but we explicitly take a workplace-culture perspective on the manifestation and foundations of helping and antisocial behavior. We provide summary statistics of all (non-standardized) firm-wave-average variables in Table A.2 in the Appendix and show distributional plots of our main variables (across waves for our items that are repeatedly asked and pooled for items that we elicit only once) in Figures A.1 to A.5 in the Appendix.

To ensure the validity of our between-firm perspective and to elaborate more on potential noise in our firm-level averages, we first undertake a simulation study. In this study, we use *employee-level* data to estimate firm effects of all explanatory variables of interest that are aggregated from the individual to the firm level. This is done after residualizing the variables of interest with respect to firm size, industry sector, survey wave, interview method, region, and ownership type. In Table 1, we report the F-statistic of the firm effect, the estimated SD of the firm effect (which is of interest, as it shows whether there is any heterogeneity at the firm level), and the estimated within-firm SD. We then calculate minimum and maximum bounds of a placebo between-firm and within-firm SD generated by randomly permuting the variable of interest (within survey waves) 500 times across all individuals, and

TABLE 1  
ESTIMATED VS. PLACEBO VARIANCE OF FIRM EFFECTS EXPLAINING DEPENDENT AND INDEPENDENT  
VARIABLES AFTER PARTIALLING-OUT STRUCTURAL FIRM CHARACTERISTICS

	F-stat of firm effects	Between-firm SD	Placebo between- firm SD (Min.,Max.)	Within-firm SD	Placebo within- firm SD (Min.,Max.)
Helping index	1.68	0.1371	(0.0006, 0.0590)	0.6999	(0.7137, 0.7195)
Antisocial behavior	1.53	0.1450	(0.0027, 0.0761)	0.8331	(0.8448, 0.8525)
Leadership quality	2.55	0.2502	(0.0059, 0.0827)	0.8437	(0.8809, 0.8884)
General trust	2.10	0.1921	(0.0008, 0.0610)	0.7676	(0.7963, 0.8021)
Positive reciprocity	1.67	0.1182	(0.0013, 0.0622)	0.5967	(0.6051, 0.6120)
Negative reciprocity	1.95	0.2243	(0.0028, 0.1018)	0.9505	(0.9747, 0.9862)
Altruism	1.86	0.3311	(0.0104, 0.1363)	1.4757	(1.5072, 1.5231)
Conscientiousness	1.68	0.0932	(0.0014, 0.0420)	0.4748	(0.4837, 0.4877)
Extraversion	1.54	0.1266	(0.0011, 0.0596)	0.7258	(0.7361, 0.7415)
Neuroticism	1.74	0.1555	(0.0020, 0.0675)	0.7564	(0.7706, 0.7765)
Openness	1.62	0.1179	(0.0012, 0.0488)	0.6233	(0.6334, 0.6377)
Agreeableness	1.62	0.1055	(0.0009, 0.0471)	0.5639	(0.5746, 0.5790)

NOTE.—N=17,740. One observation is an employee response in a given wave. Source: Linked Personnel Panel, waves 1 to 4 (regression sample). Survey items are shown in Table A.1.

residualizing the permuted variables with respect to the same controls. The results show significant between-firm variation for all variables, even after controlling for firm characteristics. Further, the placebo confidence intervals always exclude (and are below) the SD of the between-firm effect, and exclude (and are above) the within-firm SD of the firm effect. Hence, employees within establishments agree on all variables more than chance would expect, and the variation across firms is significantly larger than chance variation. This is in line with the results from Haylock and Kampkötter (2019). For our dependent variables helping and antisocial behavior, Figure 1 portrays this substantial between-firm heterogeneity from Table 1. This figure illustrates the distance between the vertical line (true estimate of SD of firm effects) and the distribution of the placebo SD of firm effects. To conclude, while within-firm variation exists for all variables, we also observe a significant between-firm heterogeneity, which supports the empirical approach of our study.

In the remainder of this Section, we first document the variation in helping and antisocial behavior across firms, based on our representative data (section 4.1). We then come to our main research question: What explains these firm-level differences in helping and antisocial behavior? In Section 4.2, we present our empirical strategy, followed by the main results (Sections 4.3 and 4.4) and additional robustness tests (4.6).



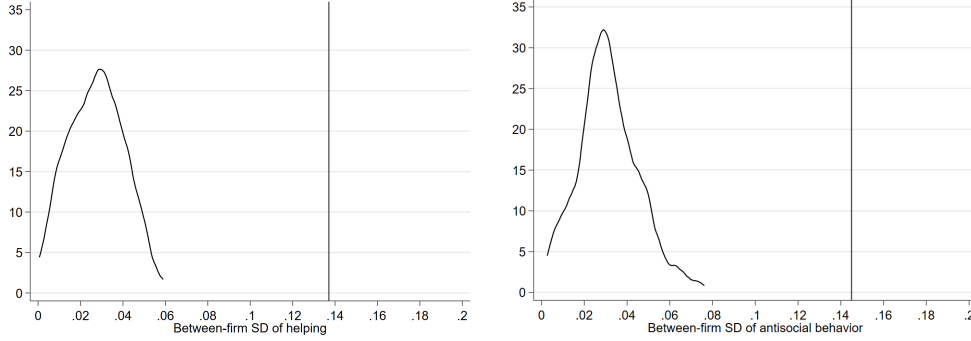


FIGURE 1—Placebo test of between-firm heterogeneity in helping and antisocial behavior. The curve marks the estimated placebo SD of the firm-effect based on 500 iterations. The vertical line marks the true estimate of the SD of the firm-effect. Source: Linked Personnel Panel, waves 1 to 4 (regression sample). Survey items are shown in Table A.1.  $N=17,740$  (individual-level data) and 1,003 firm dummies. Only establishments with at least three employee respondents per firm-wave cell are used.

#### 4.1 Variation in Helping and Antisocial Behavior Across Firms

Figure 2 shows the distributions of firm-wave averages of our helping index and antisocial behavior. The distribution of the helping index is left-skewed, with the modal firm lying between 4 (“often”) and 5 (“always”). As the figure shows, there is substantial heterogeneity in helping behavior across firms. For antisocial behavior, the distribution is right-skewed, and most firm averages range between 1 (“never or nearly never”) and 2 (“seldom”). Again, the observed heterogeneity is large.<sup>15</sup>

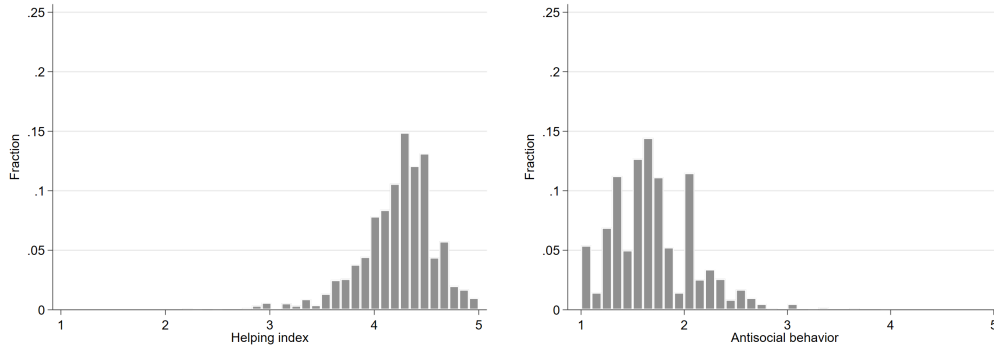


FIGURE 2—Distribution of (non-standardized) firm-wave averages of the helping index and antisocial behavior. Source: Linked Personnel Panel, waves 1 to 4 (regression sample). Survey items are shown in Table A.1.  $N=2,002$  per histogram. One observation is the average response within one establishment-wave cell. Only establishments with at least three employee respondents per firm-wave cell are used.

Similar to our findings on the individual level (Section 2.2.1), the firm-level data confirm that helping and antisocial behavior are rather distinct concepts: One is not just the opposite of the

<sup>15</sup>In Figures A.1 and A.2 in the Appendix, we show the distributions of the helping index and antisocial behavior by wave. For helping, Kolmogorov-Smirnov tests reveal significant differences between waves 1 and 2 ( $p < 0.00$ ), as well as between waves 3 and 4 ( $p < 0.00$ ), but not between waves 2 and 3 ( $p = 0.69$ ). The data show that helping cultures become more heterogeneous in the population of firms over time. For antisocial behavior, we observe a somewhat similar pattern, where the distribution significantly changes from waves 3 to 4 ( $p < 0.00$ ), but stays similar from waves 1 to 2 ( $p = 0.21$ ) and 2 to 3 ( $p = 0.32$ ).

other. While both are significantly negatively correlated at the firm level, the correlation size is rather modest (Spearman  $\rho = -0.22$  across all waves,  $p < 0.00$ ). Figure 3 shows a scatter plot of both outcome measures. There is considerable variation in antisocial behavior for all levels of helping. A contingency table of median splits for helping and antisocial behavior confirms this (Table 2). Firms with above-median helping are more likely to have below-median antisocial behavior, and vice versa (Pearson Chi-squared and Fisher’s exact tests significant at  $p < 0.00$ ). Nevertheless, in 35% of all firm-wave observations in which helping is above the median, antisocial behavior is also above the median (corresponding to 17% of all firm-wave observations).

Finally, we document that antisocial behavior (in period  $t$  and  $t+1$ ) correlates positively with the coefficient of variation (CoV) of the helping index (Table 3). This suggests that weaker helping norms in the workplace, characterized by a larger difference in individual assessments of helping behavior, go hand in hand with higher levels of antisocial behavior.

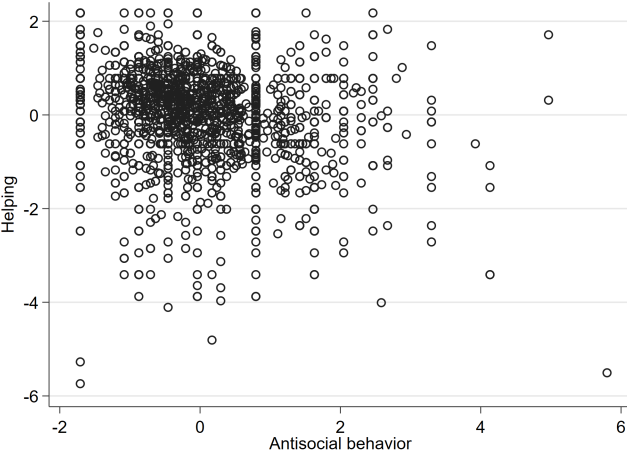


FIGURE 3—Scatter plot between helping index (std.) and antisocial behavior (std.) at the establishment-wave level. Source: Linked Personnel Panel, waves 1 to 4.  $N=2,002$ . Only establishments with at least three employee respondents per firm-wave cell are used. One observation is the average response within one establishment-wave cell. Survey items are shown in Table A.1.

TABLE 2  
CONTINGENCY TABLE OF HELPING AND ANTISOCIAL  
BEHAVIOR

	ASB≤median	ASB>median	Total
Helping≤median	472 (47%)	531 (53%)	1,003 (100%)
Helping>median	653 (65%)	346 (35%)	999 (100%)
Total observations	1,125	877	2,002

NOTE.—Two-way contingency table of above- and below-median helping index and antisocial behavior (ASB) at the firm-wave level. Only establishments with at least three employee respondents per firm-wave cell are used. Survey items are shown in Table A.1. The top number in each cell is the frequency and the bottom number is the row percentage. Source: Linked Personnel Panel, waves 1 to 4.

TABLE 3  
ANTISOCIAL BEHAVIOR AND VARIATION IN HELPING

Dep. variable: Period:	Antisocial behavior (std.) (ASB)	
	ASB <sub>t</sub> (1)	ASB <sub>t+1</sub> (2)
Coefficient of variation Helping <sub>t</sub>	0.1022*** (0.0256)	0.0860** (0.0364)
Base controls	Yes	Yes
Adj. R-squared	0.06	0.05
Observations	2,002	1,267

NOTE.—The dependent variable is the standardized firm-wave average of antisocial behavior and is regressed on the coefficient of variation of the helping index. Only establishments with at least three employee respondents per firm-wave cell are used. All continuous independent variables of interest are standardized with mean zero and unit variance. We estimate weighted least squares (WLS) regressions with cell size (the number of individual observations per firm-wave cell) as weights. Our set of base controls includes time and risk preferences, self-efficacy, school education, vocational and university education, gender, age categories, partner, living alone, interview method, survey wave, industry, region, establishment size, and ownership type. Employee-level survey items are described in Section 2 and in Table A.1 in the Appendix. Standard errors clustered on the establishment level in parentheses. The symbols \*, \*\*, and \*\*\* represent significance levels of 10%, 5%, and 1%, respectively.

## 4.2 Empirical Strategy

What explains the observed heterogeneity in helping and antisocial behavior across firms? To answer this question, we pursue the following empirical strategy. We first regress the standardized firm-wave-level outcome variables ( $Y_{f,t}$ ) in a firm  $f$  at wave  $t$  on each of our three main groups of explanatory

variables separately, using the following set of regression equations:

$$Y_{f,t} = \alpha + \beta_1 EXPLANATORY_{f,t} + \beta_2 CONTROLS_{f,t} + \theta_t + \varepsilon_{f,t}.$$

The main independent firm-level variables ( $EXPLANATORY_{f,t}$ ) are either leadership quality ( $LEADERSHIP_{f,t}$ ), Big Five personality traits ( $PERSONALITY_{f,t}$ ), or social preferences and general trust ( $PREFERENCES_{f,t}$ ). The outcome variables ( $Y_{f,t}$ ) are either helping ( $HELP_{f,t}$ ) or antisocial behavior ( $ASB_{f,t}$ ).  $\varepsilon_{f,t}$  is the idiosyncratic error term. Unless stated otherwise, all continuous independent variables are standardized firm-wave averages. The regressions are weighted by the number of observations per firm-wave cell (i.e., the number of employees contributing to the firm-wave average), with standard errors clustered at the firm level. All regressions include our full set of control variables ( $CONTROLS_{f,t}$ ) and survey wave fixed effects ( $\theta_t$ ).

We next simultaneously include all three groups of explanatory variables and estimate the following regression equation in the full model:

$$Y_{f,t} = \alpha + \beta_1 LEADERSHIP_{f,t} + \beta_2 PERSONALITY_{f,t} + \beta_3 PREFERENCES_{f,t} + \beta_4 CONTROLS_{f,t} + \theta_t + \varepsilon_{f,t}.$$

This allows us to check whether leadership, personality traits, economic preferences, and trust have distinct additional explanatory power. This is the main specification we refer to.

For leadership quality, however, we can further address two common sources of endogeneity. First, as we elicit leadership quality in each survey wave, we run a firm fixed effects regression (FE) to study the link between leadership quality and our outcome variables. This allows us to account for time-invariant unobserved heterogeneity at the firm level, which might result in an omitted variable bias problem. Second, to address a potential simultaneity bias resulting from reverse causation, we estimate a lagged dependent variable (LDV) model. The rationale here is that time-variant unobserved heterogeneity can be captured by additionally controlling for the lag of the dependent variable,  $Y_{f,t-1}$ . These time-varying unobserved characteristics could be driven, for instance, by the sorting of workers into firms based on helping or antisocial behavior. The LDV approach also serves to reduce potential common method bias further.

Moreover, separately estimating the individual fixed effects model and the lagged dependent variable model allows us further to explore the link between leadership and our outcome variables. Angrist and Pischke (2009, pp. 182-185) argue that the parameter estimates from the FE and the

LDV model serve as upper and lower bounds of the true (unobserved) effect (the so-called bracketing property). The first approach addresses endogeneity concerns due to time-constant unobserved heterogeneity between firms; the second approach mitigates simultaneity bias due to reverse causation. Together, if significant, the estimated coefficients indicate the upper and lower bounds of the true effect size of leadership quality on helping behavior.<sup>16</sup>

We abstain from estimating firm fixed effects regressions with personality traits, social preferences, and general trust as independent variables, as these characteristics are considered as fixed and measured only once per individual. Hence, any firm-level differences in this regard would require substantial changes in the workforce composition, which we do not observe.<sup>17</sup>

### 4.3 Helping

Table 4 contains our main results for helping behavior in the workplace as the dependent variable. We first study whether leadership quality positively correlates with helping across firms. The results reported in column (1) show that leadership quality is positively associated with subordinates' helping behavior. The full model specification in column (4) indicates that, although the coefficient slightly decreases in magnitude, leadership quality remains positively and significantly correlated with helping, even when simultaneously including personality traits, social preferences, and general trust in the regression. The effect size is substantial: A one SD increase in leadership quality is associated with a 0.15 SD increase in helping. The novelty of this finding is that we show a strong relation in the cross-section of firms between leadership quality and helping, controlling for a series of other behaviorally relevant measures that are linked to helping.

We next consider the association between employees' personality traits and helping. The results reported in column (2) document more helping in firms with higher levels of extraversion, openness, and agreeableness. On the other hand, neuroticism is negatively correlated with helping. However, the relationship between personality traits and helping is not as robust once we simultaneously include leadership quality, social preferences, and general trust. Column (4) shows that, for instance, the correlation with neuroticism is halved. The estimated coefficients for extraversion and agreeableness decrease as well, but the associations remain positive and significant: A one SD increase in agreeableness is associated with a 0.09 SD increase in helping, while a one SD increase in extraversion is associated with a 0.05 SD increase in helping.

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<sup>16</sup>See also Falk et al. (2018b), Kampkötter and Sliwka (2018), and Beckmann and Kräkel (2022) for recent applications.

<sup>17</sup>In total, we observe only 643 movers in our sample, corresponding to about 3% of employee observations.

TABLE 4  
DETERMINANTS OF HELPING

Dep. variable:	Helping index (std.)			
	(1)	(2)	(3)	(4)
Leadership quality	0.1989*** (0.0239)			0.1457*** (0.0238)
Conscientiousness		0.0193 (0.0259)		0.0300 (0.0255)
Extraversion		0.0642** (0.0260)		0.0520** (0.0257)
Neuroticism		-0.0744*** (0.0254)		-0.0424* (0.0254)
Openness		0.0503* (0.0277)		0.0250 (0.0266)
Agreeableness		0.1231*** (0.0260)		0.0873*** (0.0253)
Trust			0.1977*** (0.0290)	0.1449*** (0.0293)
Positive reciprocity			0.0460** (0.0223)	0.0451** (0.0223)
Negative reciprocity			-0.0105 (0.0252)	0.0183 (0.0251)
Altruism			0.0800*** (0.0259)	0.0653*** (0.0251)
Structured management	0.0998** (0.0407)	0.1130*** (0.0411)	0.1225*** (0.0410)	0.0780* (0.0400)
Base controls	Yes	Yes	Yes	Yes
Individual ability	Yes	Yes	Yes	Yes
Job controls	Yes	Yes	Yes	Yes
Adj. R-squared	0.17	0.17	0.18	0.21
Observations	2,002	2,002	2,002	2,002

NOTE.—The dependent variable “Helping index” is an index containing the standardized firm-wave average of two helping items: help offered, and help received. Only establishments with at least three employee respondents per firm-wave cell used. All continuous independent variables of interest are standardized with mean zero and unit variance. We estimate weighted least squares (WLS) regressions with cell size (the number of individual observations per firm-wave cell) as weights. Our set of base controls includes time and risk preferences, self-efficacy, school education, vocational and university education, gender, age categories, partner, living alone, interview method, survey wave, industry, region, establishment size, and ownership type. Job controls include the logarithm of the monthly net wage, white collar, task interdependence, management position, part-time, and fixed-term work contract. Individual ability is proxied by the firm-wave average of individual AKM fixed effects from the LIAB data, as calculated from 2010 to 2017. Employee-level survey items are described in Section 2 and in Table A.1 in the Appendix. Standard errors clustered on the establishment level are reported in parentheses. The symbols \*, \*\*, and \*\*\* represent significance levels of 10%, 5%, and 1%, respectively.

Finally, we investigate whether social preferences and general trust are positively associated with helping in firms. The results reported in column (3) show that positive reciprocity, altruism, and general trust correlate positively with firm-level helping behavior. The results reported in column (4) reveal that these associations remain robust when including leadership quality and personality traits in the regressions. The effect sizes, particularly for trust, are once again substantial: A one SD increase in trust is associated with a 0.14 SD increase in helping, and a one SD increase in positive reciprocity and altruism is associated with a 0.05 SD and 0.07 SD increase in helping, respectively.

To conclude, the results in Table 4 confirm the predicted positive relationships between helping and leadership quality as well as general trust in particular. In addition, personality traits (agreeableness, extraversion, and neuroticism) and social preferences (positive reciprocity, altruism) are positively and distinctively associated with helping behavior in the workplace. Note that, in each estimation in Table 4, we also observe a positive association of a structured management style (style 1) with helping behavior compared to a more training-oriented management style (style 2).

The repeated measurement of leadership quality allows us further to improve our identification of its association with helping behavior by including firm fixed effects (FE), on the one hand, and the lagged dependent variable (LDV), on the other. Table 5 shows the corresponding results. Column (1), which reports the results from the FE model, and column (2), which reports the results from the LDV model, both reveal a positive and highly significant coefficient of leadership quality on helping behavior. The magnitude is between 0.11 and 0.13 SD, which is only slightly smaller than our estimate from the full model in column 4 of Table 4. Thus, these results confirm the positive and significant association of leadership quality with helping behavior. The fact that the coefficient size does not largely change from cross-sectional to fixed effects estimations suggests that, at the firm level, measurement error does not change much over time due to serially uncorrelated noise. Further, using fixed effects removes any time-constant measurement error at the firm level that exists despite aggregating our measures from employee-level responses (Pischke, 2007). The fixed effects estimates should serve as a lower bound of the firm-level correlation between helping and leadership quality. The coefficient of the LDV model is also only slightly larger, suggesting that any bias in the fixed effects model from reverse causation is low.

#### 4.4 Antisocial Behavior

Table 6 contains our main results for antisocial behavior in the workplace as the dependent variable. Again, we first study whether leadership quality is related to antisocial behavior across firms. Looking

TABLE 5  
FIRM FIXED EFFECTS AND LDV ESTIMATES OF HELPING AND ANTISOCIAL BEHAVIOR ON  
LEADERSHIP

Dep. variable:	Helping index (std.)		Antisocial behavior (std.)	
	(1) FE	(2) LDV	(3) FE	(4) LDV
Leadership quality	0.1105** (0.0549)	0.1281*** (0.0344)	-0.3459*** (0.0532)	-0.3550*** (0.0290)
Base controls	Yes	Yes	Yes	Yes
Individual ability	Yes	Yes	Yes	Yes
Job controls	Yes	Yes	Yes	Yes
Preferences, Big 5, management style	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	No	Yes	No
Lagged dependent variable	No	Yes	No	Yes
Adj. R-squared	0.40	0.27	0.40	0.32
Observations	2,002	973	2,002	973

NOTE.—The dependent variable in columns (1) and (2), “Helping index”, is an index containing the standardized firm-wave average of two helping items: help offered, and help received. The dependent variable in columns (3) and (4) is the standardized firm-wave average of antisocial behavior. Only establishments with at least three employee respondents per firm-wave cell are used. All continuous independent variables of interest are standardized with mean zero and unit variance. We estimate weighted least squares (WLS) regressions with cell size (the number of individual observations per firm-wave cell) as weights. Our set of base controls includes time and risk preferences, self-efficacy, school education, vocational and university education, gender, age categories, partner, living alone, interview method, survey wave, industry, region, establishment size, and ownership type. Job controls include the logarithm of the monthly net wage, white collar, task interdependence, management position, part-time, and fixed-term work contract. Individual ability is proxied by the firm-wave average of individual AKM fixed effects from the LIAB data, as calculated from 2010 to 2017. Employee-level survey items are described in Section 2 and in Table A.1 in the Appendix. Standard errors clustered on the establishment level are reported in parentheses. The symbols \*, \*\*, and \*\*\* represent significance levels of 10%, 5%, and 1%, respectively.



at the results reported in column (1), we observe a large, negative coefficient for leadership. As with helping, the relationship between leadership quality and antisocial behavior is very robust. The results reported in column (4) show that the coefficient on leadership quality remains highly significant and very similar in magnitude when including personality traits, social preferences, and general trust in the regressions. A one SD larger average leadership quality is associated with a 0.36 SD lower antisocial behavior in a given firm. Hence, our results confirm the predicted negative relationship between good leadership quality in a firm and antisocial behavior at the workplace. Note that the coefficient size for leadership quality here is larger than when explaining mutual helping. One possible reason for this result is that the questionnaire item measuring antisocial behavior specifically includes superiors as perpetrators, while the items measuring helping only focus on colleagues at the same hierarchical level.

We next investigate the link between employees' personality traits and antisocial behavior. The results reported in column (2) show that extraversion and agreeableness are negatively correlated with antisocial behavior, while neuroticism is strongly positively correlated with antisocial behavior. The results reported in column (4) confirm that the associations with neuroticism and agreeableness are robust. The coefficients decrease in size, but remain highly significant. A level of neuroticism (the trait with the highest magnitude) that is one SD level higher is associated with a level of antisocial behavior that is higher by an SD level of 0.11. However, the association with extraversion appears to be less robust, as extraversion loses its significance when the regression includes leadership quality, social preferences, and general trust. Further, we now observe a somewhat puzzling positive relationship between openness and antisocial behavior in the specification with the full set of controls reported in column (4). We therefore conclude that our data provide strong evidence for the predicted negative relationship between neuroticism and antisocial behavior, as well as for the positive relationship between agreeableness and antisocial behavior.

Next, we consider the association between antisocial behavior and social preferences, as well as general trust. Social preferences are not related at all with antisocial behavior, in contrast to the strong relationship between social preferences and helping. The results reported in column (3) indicate that only general trust is significantly correlated with antisocial behavior. The results reported in column (4) show that the negative relationship between antisocial behavior and trust remains significant if we add leadership quality and personality traits in the regression. However, this relationship decreases in magnitude, suggesting that leadership, neuroticism, and trust are somewhat complementary when explaining antisocial behavior. This interaction could be due to the supervisors' trust being part of the leadership measure, while supervisors are also possible perpetrators of antisocial behavior. Never-

TABLE 6  
DETERMINANTS OF ANTISOCIAL BEHAVIOR

Dep. variable:	Antisocial behavior (std.)			
	(1)	(2)	(3)	(4)
Leadership quality	-0.4052*** (0.0223)			-0.3573*** (0.0214)
Conscientiousness		0.0294 (0.0263)		0.0220 (0.0235)
Extraversion		-0.0435* (0.0247)		-0.0252 (0.0216)
Neuroticism		0.1726*** (0.0266)		0.1103*** (0.0244)
Openness		0.0104 (0.0259)		0.0481** (0.0229)
Agreeableness		-0.1065*** (0.0274)		-0.0512** (0.0252)
Trust			-0.2627*** (0.0259)	-0.1538*** (0.0230)
Positive reciprocity			0.0123 (0.0240)	-0.0067 (0.0215)
Negative reciprocity			0.0252 (0.0255)	0.0063 (0.0229)
Altruism			-0.0392 (0.0259)	-0.0294 (0.0223)
Structured management	-0.0305 (0.0418)	-0.0838* (0.0436)	-0.1003** (0.0435)	-0.0165 (0.0403)
Base controls	Yes	Yes	Yes	Yes
Individual ability	Yes	Yes	Yes	Yes
Job controls	Yes	Yes	Yes	Yes
Adj. R-squared	0.23	0.12	0.14	0.27
Observations	2,002	2,002	2,002	2,002

NOTE.—The dependent variable is the standardized firm-wave average of antisocial behavior. Only establishments with at least three employee respondents per firm-wave cell are used. All continuous independent variables of interest are standardized with mean zero and unit variance. We estimate weighted least squares (WLS) regressions with cell size (the number of individual observations per firm-wave cell) as weights. Our set of base controls includes time and risk preferences, self-efficacy, school education, vocational and university education, gender, age categories, partner, living alone, interview method, survey wave, industry, region, establishment size, and ownership type. Job controls include the logarithm of the monthly net wage, white collar, task interdependence, management position, part-time, and fixed-term work contract. Individual ability is proxied by the firm-wave average of individual AKM fixed effects from the LIAB data, as calculated from 2010 to 2017. Employee-level survey items are described in Section 2 and in Table A.1 in the Appendix. Standard errors clustered on the establishment level in parentheses. The symbols \*, \*\*, and \*\*\* represent significance levels of 10%, 5%, and 1%, respectively.

theless, a substantial coefficient size in column (4) suggests that general trust plays a significant role. A one SD increase in general trust is associated with a 0.15 SD decrease in antisocial behavior. Hence, general trust among employees and between employees and supervisors is important for mitigating antisocial behavior in firms. When looking at the association of management style with antisocial behavior in Table 6, we find that a structured management style is associated with a lower level of antisocial behavior. Still, the association is less robust when compared to helping. In particular, when we include leadership quality, the coefficient becomes very small and insignificant, suggesting that management style does not add to explaining between-firm variation in antisocial behavior beyond our measure of leadership.

Finally, we also consider the FE and LDV models to improve our identification of the association of leadership quality with antisocial behavior. Columns (3) and (4) of Table 5 report the results. As can be seen, the coefficient is always highly significant and of similar, large magnitude (around 0.35 SD) as in the full model in Table 6. We thus conclude that our data provide solid evidence for a significant negative relationship between leadership quality in firms and antisocial behavior in the workplace.

## 4.5 ORIV Estimates

Because we have multiple items measuring leadership quality, we can use the *obviously related instrumental variables* (ORIV) method developed by Gillen, Snowberg, and Yariv (2019) to account for measurement error in the independent variables that may lead to attenuation bias. In Table 7, we use our two leadership items *supervisor trust* and *supervisor understanding* as instruments for each other in a stacked 2SLS regression design with standard errors clustered at the firm level. Importantly, the two survey items belong to the same construct called “supervisory support” (Patterson et al., 2005) and hence measure similar aspects of leadership. Comparing our main regression specification with all variables from column (4) of Tables 4 and 6 to ORIV results in columns (2) and (3) of Table 7 allows us to gauge how much classical measurement error is biasing the results for leadership.<sup>18</sup> The first stage of the 2SLS regression in column (1) of Table 7 shows a strong correlation between the two leadership items. Second-stage estimates in columns (2) and (3) show a 37% (36%) larger relationship for helping (and antisocial behavior), respectively, than in OLS. Hence, our main results for leadership quality are slightly larger when using procedures to account for classical measurement error in the independent variables. The ORIV approach is also robust to using a random effects IV or a firm fixed

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<sup>18</sup>Note that the number of observations doubles from stacking the regression, which is accounted for by clustering standard errors at the firm level (Gillen, Snowberg, and Yariv, 2019).

effects IV estimation, as shown in Table A.15.

## 4.6 Robustness Tests

We conduct a series of robustness tests with our main regression specification (see Appendix B for details). In these robustness tests, we use lead dependent variables, exclude employee sample refreshers, restrict our data set to a balanced panel of firms, aggregate individual variables at the functional area level within each firm-wave cell, and separate the helping index into its single items.

We first account for firm-level shocks correlated with both independent and dependent variables in the same period by using the outcome measures from the next survey wave, i.e., two years later. This should mitigate any concerns that a general unobserved shock in the firm at the time of measurement is driving the results. As can be seen in Tables A.16 and A.17, the results are robust to this exercise. Similarly, our fixed effects results above should account for persistent unobserved effects when looking at leadership quality.

Next, to check whether our results are driven by the refreshment sample that addresses survey attrition, we exclude LPP employee survey refreshers from the analysis. We thereby test whether the results are potentially driven by unobserved differences in characteristics of refreshers and panel cases. As Tables A.3 to A.5 show, the results are largely identical to our baseline specifications, both for helping and antisocial behavior.

Next, we use a balanced panel of firms to address a potential selectivity bias at the firm level. Here, we only keep firms in the data set that have been continuously surveyed in all four waves of the LPP. The balanced panel has the benefit of our being able to check whether any developments we observe over time are driven by a different composition of firms in the sample. Of course, this also introduces a survivor bias, as the sample of surviving firms might no longer be representative. As Tables A.6 to A.8 show, all our results broadly remain unchanged.

Since the second survey wave, our data set contains information about the functional areas in which the survey respondents work. We can differentiate between four areas: assembly, sales/marketing, cross-functional/administrative jobs (e.g., HR, accounting, finance), and services. In a further robustness test, we aggregate data at the functional area-firm-wave level, i.e., our unit of observation changes from the establishment-wave level to the level of a functional area in a given firm in a given wave. Tables A.9 to A.11 show that our results are largely unchanged.

Finally, in Tables A.12 and A.13, we separate the helping index into its two survey items *help*

TABLE 7  
ORIV ESTIMATES OF HELPING AND ANTISOCIAL BEHAVIOR ON  
LEADERSHIP QUALITY

Dep. variable:	(1) First stage	Helping index (std.) (2) IV	Antisocial behavior (std.) (3) IV
Instrument	0.6603*** (0.0149)		
Leadership quality		0.1994*** (0.0320)	-0.4867*** (0.0297)
Base controls	Yes	Yes	Yes
Individual ability	Yes	Yes	Yes
Job controls	Yes	Yes	Yes
Pref., Big 5, man. style	Yes	Yes	Yes
(Adj.) R-squared	0.53	0.23	0.25
Observations	4,004	4,004	4,004
F test of excl. instrument		1,969	1,969

NOTE.—We apply the ORIV procedure of Gillen, Snowberg, and Yariv (2019), and use supervisor trust and supervisor understanding as instruments for each other in a stacked IV regression design. The dependent variable in column (2), “Helping index”, is an index containing the standardized firm-wave average of two helping items, help offered, and help received. The dependent variable in column (3) is the standardized firm-wave average of antisocial behavior. Only establishments with at least three employee respondents per firm-wave cell are used. All continuous independent variables of interest are standardized with mean zero and unit variance. Column (1) shows first-stage results of a 2SLS ORIV regression. Columns (2) and (3) show ORIV regressions with cell size (the number of individual observations per firm-wave cell) as weights. Our set of base controls includes time and risk preferences, self-efficacy, school education, vocational and university education, gender, age categories, partner, living alone, interview method, survey wave, industry, region, establishment size, and ownership type. Job controls include the logarithm of the monthly net wage, white collar, task interdependence, management position, part-time, and fixed-term work contract. Individual ability is proxied by the firm-wave average of individual AKM fixed effects from the LIAB data, as calculated from 2010 to 2017. Employee-level survey items are described in Section 2 and in Table A.1 in the Appendix. Standard errors clustered on the establishment level are reported in parentheses. The symbols \*, \*\*, and \*\*\* represent significance levels of 10%, 5%, and 1%, respectively.

*received* and *help offered*. The results show that all associations remain robust, but the coefficients' size is about twice as large for help received than for help offered. In Table A.14, we see that leadership becomes insignificant for help offered when we include firm fixed effects. These findings suggest that the main channel through which between-firm differences in leadership quality influences helping behavior in the workplace is how employees assess the behavior of *other* employees, rather than their own helping behavior. At the same time, this also mitigates possible concerns of spurious correlation due to similar individual items measured in the left-hand-side and right-hand-side variables.

## 5 Conclusion

This paper uses a unique linked employer-employee data set to analyze the heterogeneity and foundations of helping and antisocial behavior in the workplace. Our data are representative of larger private-sector companies in a developed economy and cover multiple survey waves. The surveys apply behaviorally validated items to measure economic preferences, and they use established measures from validated scales to measure general trust, personality traits, and leadership quality. Finally, the data provide rich information on important employee and firm characteristics, including human-resource management practices. As far as we know, we are the first to combine such rich and complementary employer-employee data to uncover the organizational and behavioral foundations of helping and antisocial behavior in the workplace.

Our results document considerable heterogeneity in helping and antisocial behavior across firms. Although the two types of behavior are negatively correlated, a non-negligible share of firms exhibit high levels of both helping and antisocial behavior, suggesting that these are distinct dimensions of workplace cultures. Concerning the foundations, we find that altruism and agreeableness are strong and significant drivers of helping behavior. Personality (in particular, neuroticism) matters the most for antisocial behavior. Employees' general trust is an important and strong predictor for both outcome variables. In addition, leadership quality adds significant explanatory power and is strongly associated with more helping and, in particular, less antisocial behavior in the workplace.

Our results have important implications for future research. We find substantial heterogeneity in helping and antisocial behavior across firms, and this heterogeneity is explained by differences in leadership quality. Why do firms with low levels of helping - or high levels of antisocial behavior - not adapt their leadership behavior? One possible reason could be that the specific economic conditions force leaders to focus more on operational objectives and adopt more directive leadership behavior

(Stoker, Garretsen, and Soudis, 2019; Garretsen et al., 2022). An alternative is that the leaders' own type, i.e., personality, preferences, and beliefs, determines their leadership behavior (Falk and Kosfeld, 2006; Bolton, Brunnermeier, and Veldkamp, 2013; Kosfeld, 2020). Specific leader characteristics might also influence the workforce composition. Presumably, trusting managers with strong beliefs are better at attracting more trusting employees (Van den Steen, 2005; Sliwka, 2007). Future research might shed more light on the determinants of leadership behavior and how the latter impacts the workforce composition.

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## A Additional Descriptive Statistics

TABLE A.1  
SURVEY ITEMS OF MAIN EMPLOYEE-LEVEL VARIABLES

Survey item (or index)	Repeatedly measured	Exact wording of item(s)	Scale
Helping index	Yes	A: "How often do you receive support or help from your colleagues if you ask?" B: "How often do you offer your colleagues help?"	5-point
Antisocial behavior	Yes	"How often do you feel wrongly criticized, harassed or denounced by your colleagues or superiors?"	5-point
Leadership quality	Yes	A: "Supervisors show that they trust in those they manage." B: "Supervisors show an understanding of the people who work for them."	5-point
Positive reciprocity	No	"If someone does me a favor, I am prepared to return it."	5-point
Negative reciprocity	No	"If I am treated very unjustly, I will take revenge at the first occasion, even if there is a cost to do so."	5-point
Altruism	No	"How do you assess your willingness to share with others without expecting anything in return?"	11-point
Trust	No	A: "Nowadays, one can't rely on anybody." (R) B: "On the whole, one can trust people."	5-point
Big 5: Openness to experience	No	"I see myself as someone who..." A: "is original, comes up with new ideas." B: "values artistic, aesthetic experiences." "C: has an active imagination." D: "is eager for knowledge."	5-point
Big 5: Extraversion	No	"I see myself as someone who..." A: "is communicative, talkative." B: "is reserved." (R) C: "is outgoing, sociable:"	5-point
Big 5: Conscientiousness	No	"I see myself as someone who..." A: "does a thorough job." B: "tends to be lazy." (R) C: "does things effectively and efficiently."	5-point
Big 5: Agreeableness	No	"I see myself as someone who..." A: "is sometimes somewhat rude to others." (R) B: "has a forgiving nature." C: "is considerate and kind to others."	5-point
Big 5: Neuroticism	No	"I see myself as someone who..." A: "worries a lot." B: "gets nervous easily" C: "is relaxed, handles stress well" (R)	5-point
Risk attitude	No	"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?"	11-point
Time preference	No	"A: I abstain from certain things today so I can afford more tomorrow." "B: I tend to procrastinate things even though it would be better to do them now." (R)	5-point

Self efficacy            No            A: "I can rely on my own abilities in difficult situations."    5-point  
B: "I am able to solve most problems on my own."    C: "I  
can usually solve even challenging and complex tasks well."

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(R): Reverse-coded



TABLE A.2  
SUMMARY STATISTICS (WEIGHTED BY NUMBER OF EMPLOYEES)

	Obs.	Mean	S.D.	Min.	Max.	Med.
Number of employees (unweighted)	2,002	9.2	17.2	3	536	6
Helping index	2,002	4.2	0.3	2.2	5	4.3
Help offered	2,002	4.2	0.3	1	5	4.2
Help received	2,002	4.3	0.3	1.3	5	4.3
Antisocial behavior	2,002	1.7	0.3	1	4	1.6
AKM ind. FE <sub>2010–2017</sub>	1,996	4.2	0.2	3.3	5.2	4.2
General trust	2,002	3.5	0.3	1.9	4.6	3.5
Positive reciprocity	1,793	4.5	0.2	2	5	4.5
Negative reciprocity	1,793	1.9	0.4	1	5	1.9
Altruism	1,793	7.7	0.6	4	10	7.7
Risk tolerance	2,002	5.6	0.6	1.8	8.5	5.6
Time preference	1,792	3	0.3	1	5	3
Conscientiousness	2,002	4.4	0.2	3.2	5	4.3
Extraversion	2,002	3.7	0.3	2.3	4.9	3.7
Neuroticism	2,002	2.7	0.3	1.3	4	2.7
Openness	2,002	3.6	0.2	2.3	4.9	3.7
Agreeableness	2,002	4	0.2	2.9	5	4
Self efficacy	1,793	4.2	0.2	3	5	4.2
Leadership quality	2,002	3.8	0.4	1.4	5	3.8
Supervisor trust	2,002	3.8	0.4	1.3	5	3.8
Supervisor understanding	2,002	3.7	0.4	1.2	5	3.8
Structured management	1,971	0.7	0.4	0.0	1.0	1.0
Depend on me	2,002	3.8	0.5	1	5	3.8
Depend on others	2,002	3.4	0.5	1	5	3.4
White-collar	2,002	0.6	0.3	0	1	0.7
Management position	2,002	0.3	0.2	0	1	0.3
Part-time	2,002	0.1	0.2	0	1	0.1
Log monthly net wage	2,001	7.7	0.4	4	9.9	7.7
Fixed-term work contract	2,002	0	0.1	0	1	0
Female	2,002	0.3	0.2	0	1	0.2
Under 30 years	2,002	0.1	0.1	0	0.8	0.1
30-40 years old	2,002	0.2	0.1	0	1	0.2
40-50 years old	2,002	0.3	0.2	0	1	0.3
Partner	2,002	0.8	0.1	0	1	0.9
Lives alone	2,002	0.1	0.1	0	1	0.1
No school certificate	2,002	0	0	0	0.3	0
9th grade	2,002	0.2	0.2	0	1	0.2
10th grade	2,002	0.4	0.2	0	1	0.4
Univ. of app. sc. entrance qual.	2,002	0.1	0.1	0	1	0.1
University entrance qualification	2,002	0.2	0.2	0	1	0.2
Other school education	2,002	0	0	0	1	0
No further education	2,002	0	0.1	0	1	0
Apprenticeship	2,002	0.5	0.2	0	1	0.5
Trade school	2,002	0.1	0.1	0	1	0.1
Master craftsman	2,002	0.2	0.2	0	1	0.2
Univ. of appl. sciences	2,002	0.1	0.1	0	1	0.1
University	2,002	0.1	0.1	0	1	0.1

*Continued on next page*

Table A.2 – *Continued from previous page*

	Obs.	Mean	S.D.	Min.	Max.	Med.
Other further education	2,002	0	0	0	0.3	0
North	2,002	0.2	0.4	0	1	0
East	2,002	0.2	0.4	0	1	0
South	2,002	0.3	0.4	0	1	0
West	2,002	0.3	0.5	0	1	0
Under 50	2,002	0	0.1	0	1	0
50-99	2,002	0.1	0.3	0	1	0
100-249	2,002	0.2	0.4	0	1	0
250-499	2,002	0.2	0.4	0	1	0
Above 500	2,002	0.4	0.5	0	1	0
Manufact.	2,002	0.3	0.5	0	1	0
Metal	2,002	0.4	0.5	0	1	0
Commerce	2,002	0.1	0.3	0	1	0
Bus./fin. serv.	2,002	0.1	0.3	0	1	0
IT/oth. serv.	2,002	0	0.2	0	1	0
Health/Social	2,002	0	0.2	0	1	0
Family owned	2,002	0.4	0.5	0	1	0
Management-owned	2,002	0.1	0.4	0	1	0
Financial inv./Dispersed ownership	2,002	0.2	0.4	0	1	0
State-owned	2,002	0	0.2	0	1	0
Other ownership type	2,002	0.2	0.4	0	1	0
CATI	2,002	0.9	0.3	0	1	1
Wave 1	2,002	0.3	0.5	0	1	0
Wave 2	2,002	0.3	0.4	0	1	0
Wave 3	2,002	0.2	0.4	0	1	0
Wave 4	2,002	0.2	0.4	0	1	0

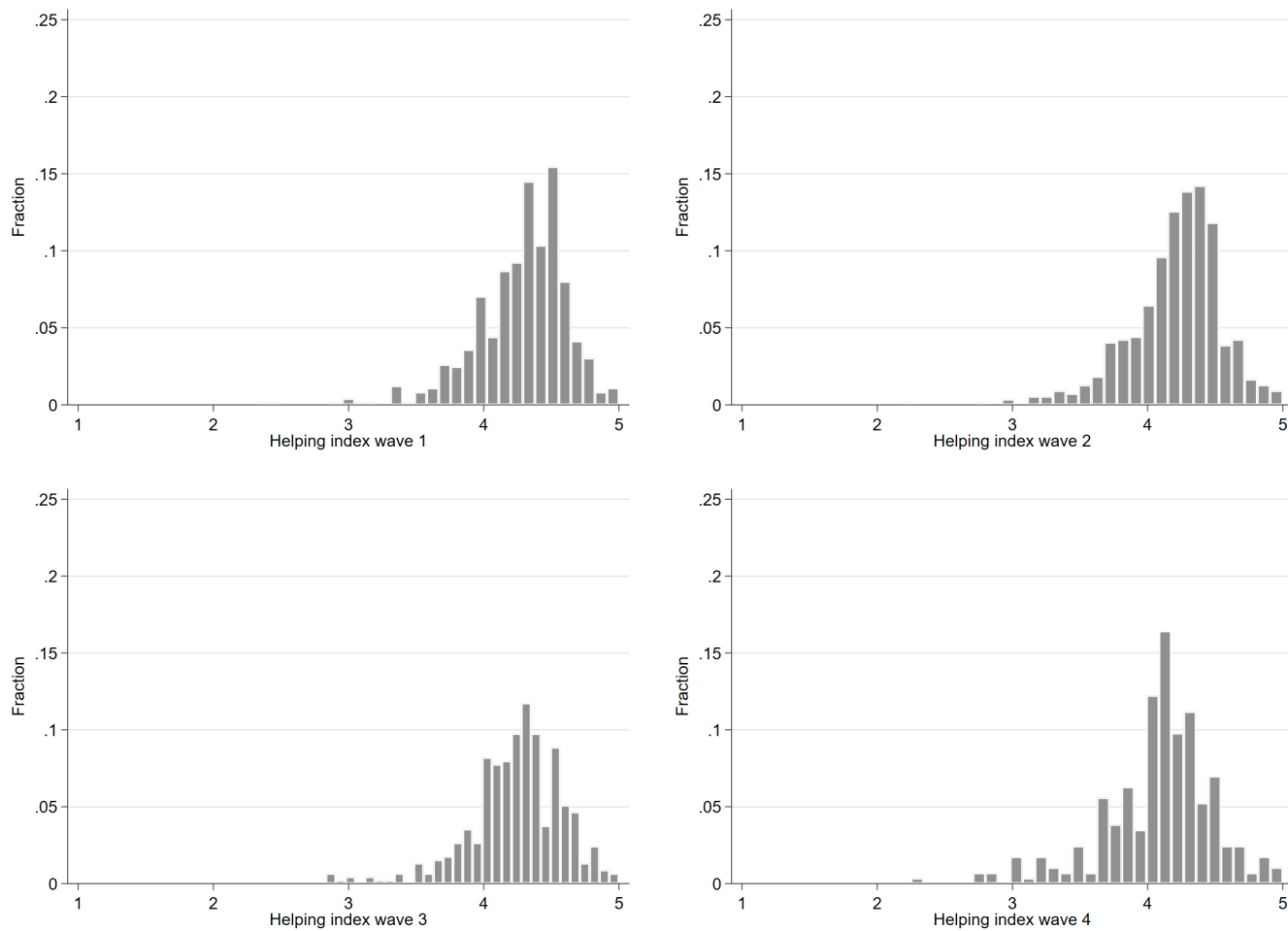


FIGURE A.1—Distribution of the establishment-wave average helping index by wave. Source: Linked Personnel Panel, waves 1 to 4. N=2,002 in total. Wave 1: N=724, wave 2: N=541, wave 3: N=451, wave 4: N=286. One observation is the average response within one establishment-wave cell. Only establishments with at least three employee respondents per establishment-wave cell are used. Survey items shown in Table A.1.

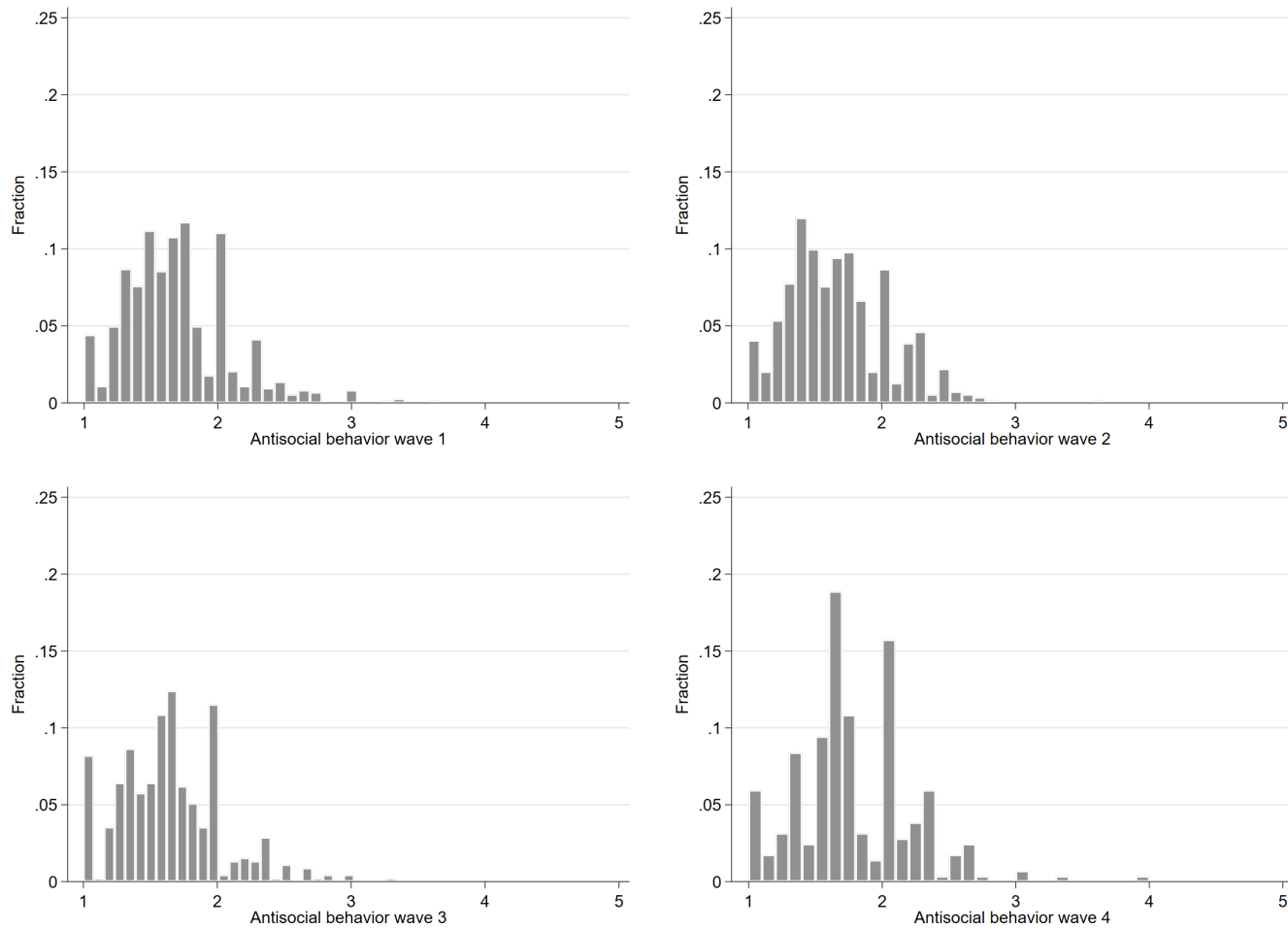


FIGURE A.2—Distribution of the establishment-wave average of antisocial behavior. Source: Linked Personnel Panel, waves 1 to 4. N=2,002 in total. Wave 1: N=724, wave 2: N=541, wave 3: N=451, wave 4: N=286. One observation is the average response within one establishment-wave cell. Only establishments with at least three employee respondents per firm-wave cell are used. Survey items shown in Table A.1.

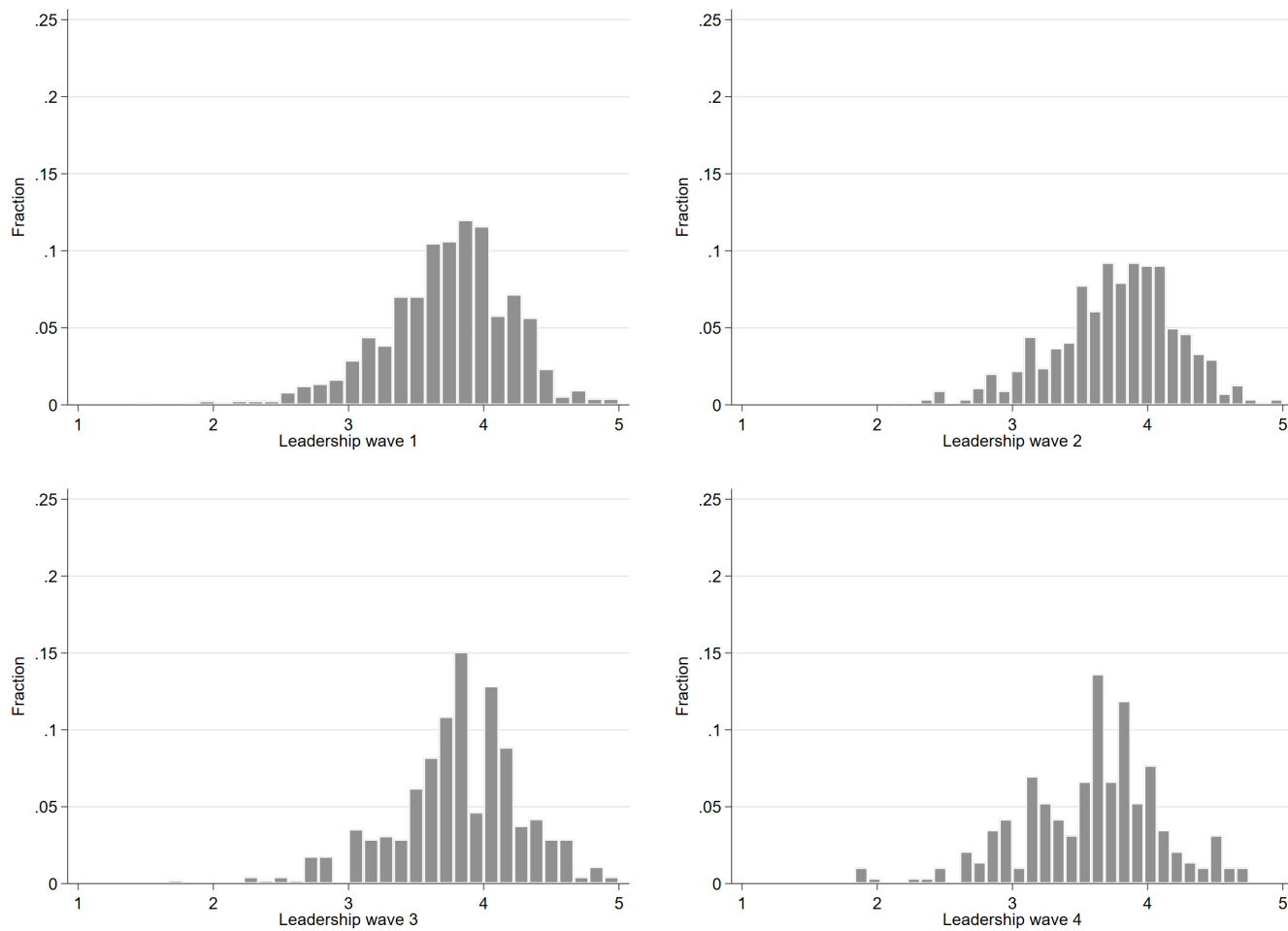


FIGURE A.3—Distribution of leadership quality by wave. Source: Linked Personnel Panel, waves 1 to 4.  $N=2,002$  in total. Wave 1:  $N=724$ , wave 2:  $N=541$ , wave 3:  $N=451$ , wave 4:  $N=286$ . One observation is the average response within one establishment-wave cell. Only establishments with at least three employee respondents per firm-wave cell are used. Survey items shown in Table A.1.

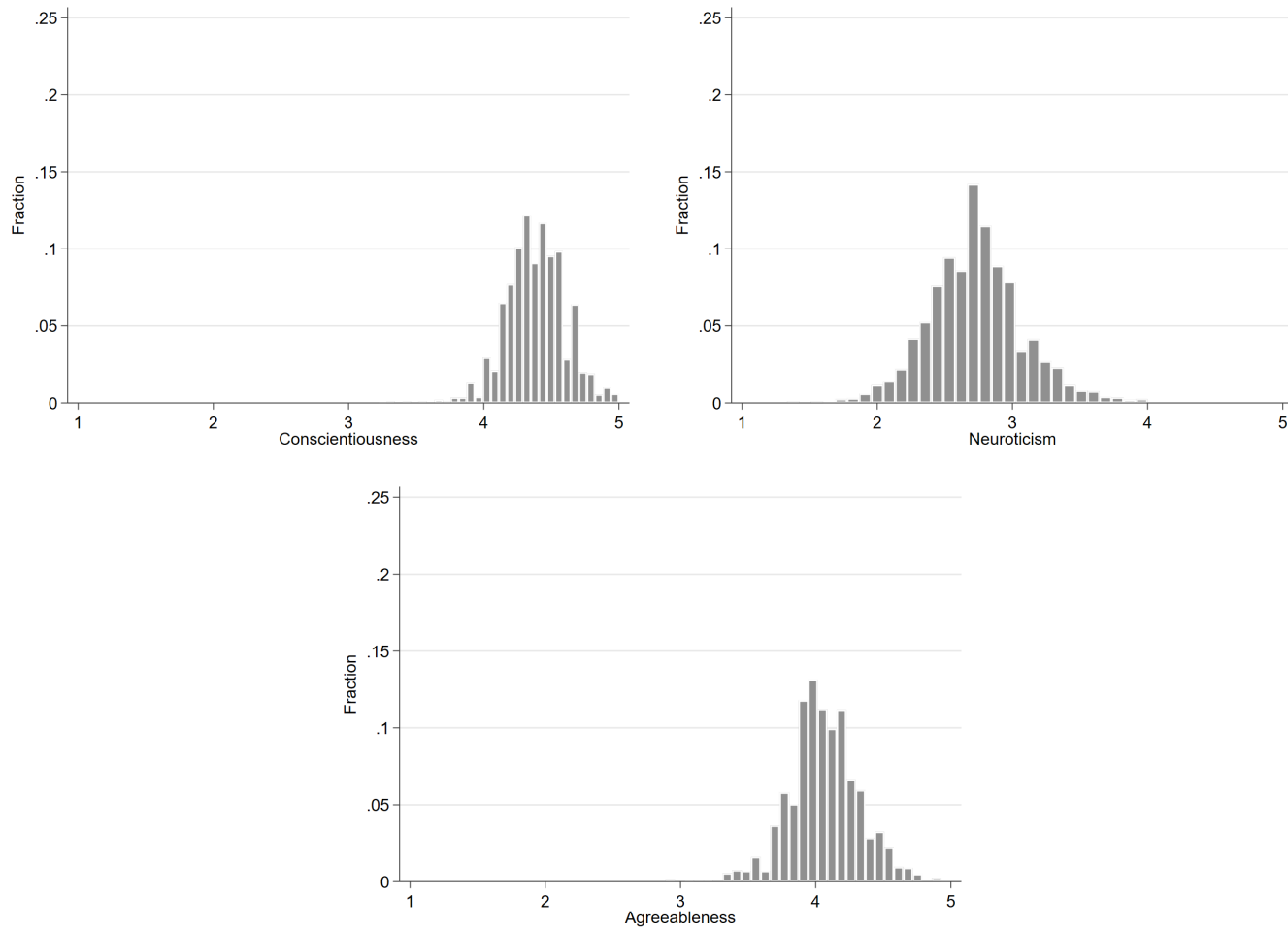


FIGURE A.4—Distribution of Big Five personality traits. One observation is the average response within one establishment-wave cell. Source: Linked Personnel Panel, waves 1 to 4. N=2,002 in total. Wave 1: N=724, wave 2: N=541, wave 3: N=451, wave 4: N=286. Only establishments with at least three employee respondents per establishment-wave cell are used. Survey items shown in Table A.1.

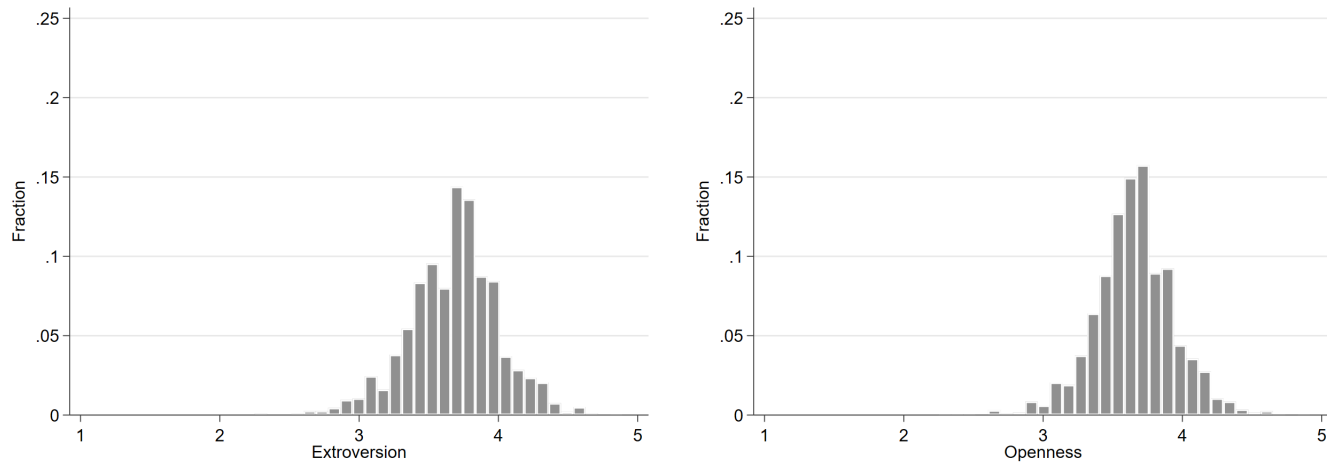


FIGURE A.4—Distribution of Big Five personality traits (continued). One observation is the average response within one establishment-wave cell. Source: Linked Personnel Panel, waves 1 to 4. N=2,002 in total. Wave 1: N=724, wave 2: N=541, wave 3: N=451, wave 4: N=286. Only establishments with at least three employee respondents per establishment-wave cell are used. Survey items shown in Table A.1.

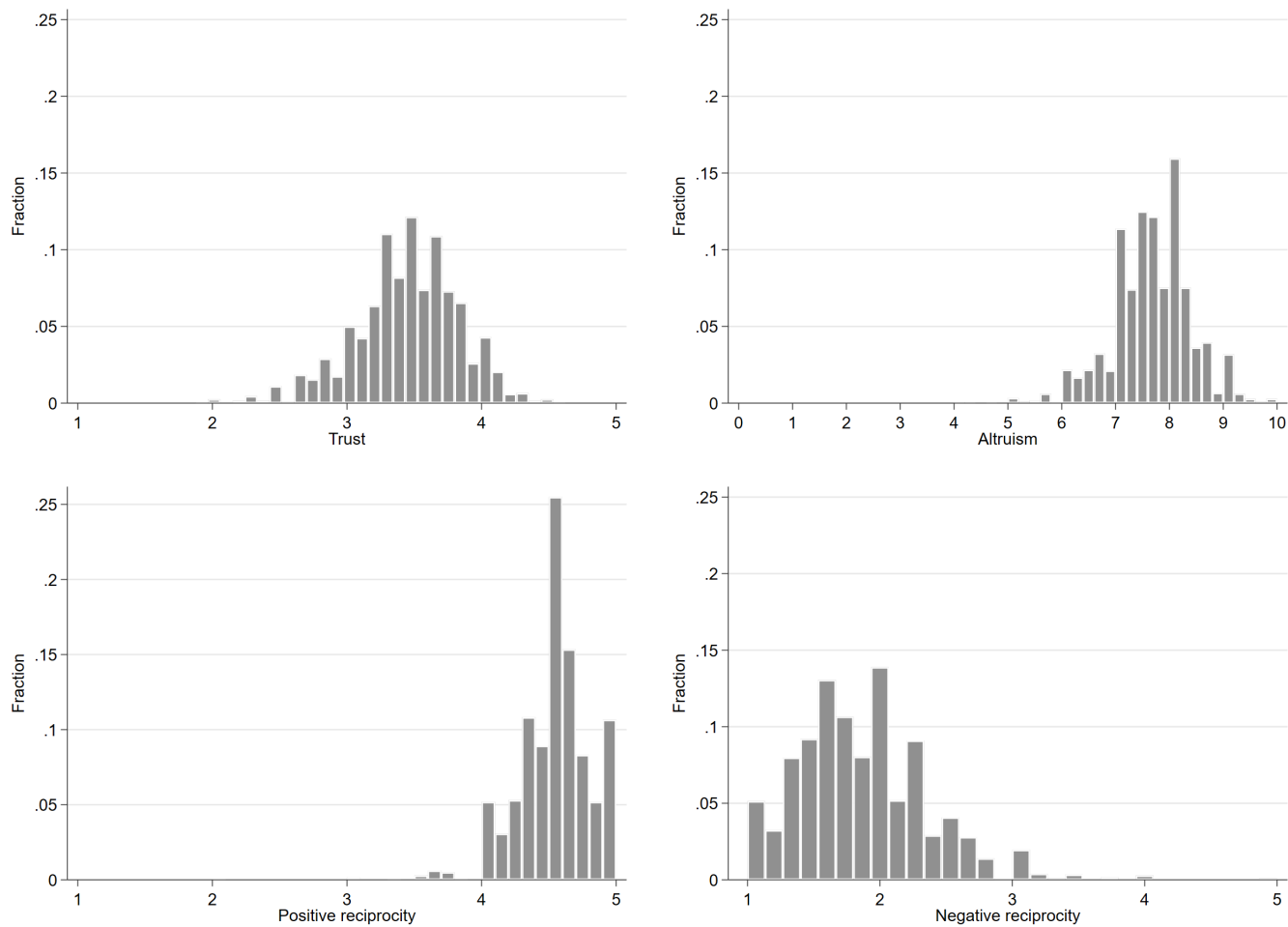


FIGURE A.5—Distribution of trust and social preferences. Source: Linked Personnel Panel, waves 1 to 4.  $N=2,002$  in total. Wave 1:  $N=724$ , wave 2:  $N=541$ , wave 3:  $N=451$ , wave 4  $N=286$ , except positive reciprocity, negative reciprocity, and altruism (each wave 1:  $N=515$ , wave 2:  $N=541$ , wave 3:  $N=451$ , wave 4:  $N=286$ ). One observation is the average response within one establishment-wave cell. Only establishments with at least three employee respondents per establishment-wave cell are used. Survey items shown in Table A.1.



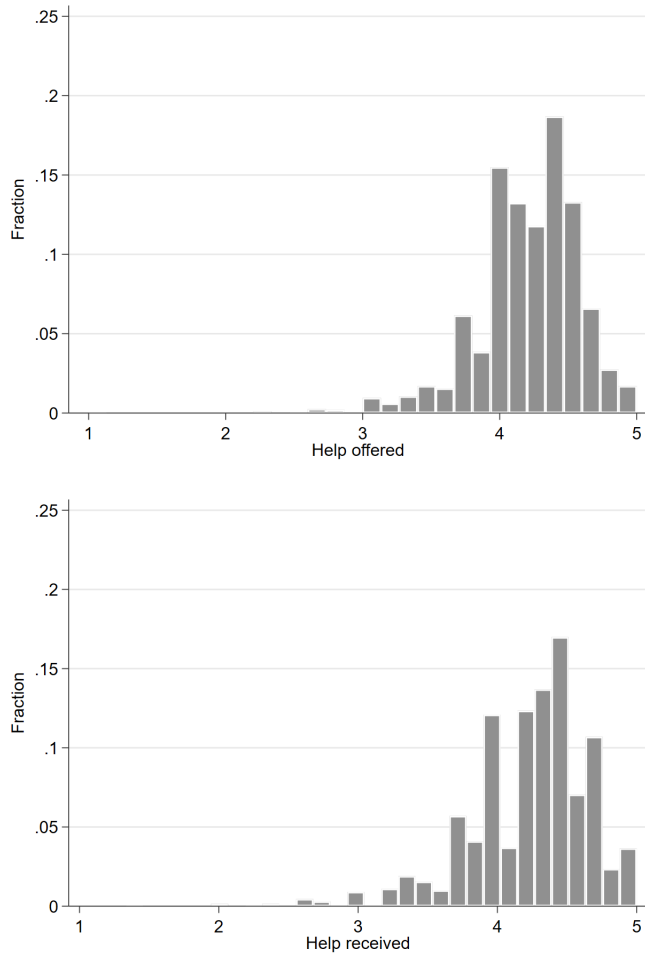


FIGURE A.6—Distribution of (non-standardized) firm-wave averages of help offered and help received. Source: Linked Personnel Panel, waves 1 to 4 (regression sample). Survey items are shown in Table A.1. N=2,002 per histogram. One observation is the average response within one establishment-wave cell. Only establishments with at least three employee respondents per firm-wave cell are used.

## B Robustness Tests

TABLE A.3  
DETERMINANTS OF HELPING

Dep. variable:	Helping index (std.)			
	(1)	(2)	(3)	(4)
Leadership quality	0.1893*** (0.0239)			0.1346*** (0.0242)
Conscientiousness		-0.0206 (0.0272)		0.0015 (0.0270)
Extraversion		0.0697** (0.0288)		0.0506* (0.0285)
Neuroticism		-0.0629** (0.0270)		-0.0286 (0.0271)
Openness		0.0570* (0.0302)		0.0309 (0.0288)
Agreeableness		0.1320*** (0.0266)		0.1006*** (0.0256)
Trust			0.1976*** (0.0299)	0.1433*** (0.0304)
Positive reciprocity			0.0420* (0.0253)	0.0479** (0.0241)
Negative reciprocity			-0.0049 (0.0277)	0.0171 (0.0276)
Altruism			0.1003*** (0.0261)	0.0797*** (0.0255)
Structured management	0.1334*** (0.0436)	0.1429*** (0.0438)	0.1460*** (0.0430)	0.1084** (0.0422)
Base controls	Yes	Yes	Yes	Yes
Individual ability	Yes	Yes	Yes	Yes
Job controls	Yes	Yes	Yes	Yes
Adj. R-squared	0.13	0.12	0.14	0.17
Observations	1,703	1,703	1,703	1,703

NOTE.—Sample refreshers are excluded from this analysis. The dependent variable “Helping index” is an index containing the standardized firm-wave average of two helping items, help given, and help received. Only establishments with at least three employee respondents per firm-wave cell used. All continuous independent variables of interest are standardized with mean zero and unit variance. We estimate weighted least squares (WLS) regressions with cell size (the number of individual observations per firm-wave cell) as weights. Our set of base controls includes time and risk preferences, self-efficacy, school education, vocational and university education, gender, age categories, partner, living alone, interview method, survey wave, industry, region, establishment size, and ownership type. Job controls include the logarithm of the monthly net wage, white collar, task interdependence, management position, part-time, and fixed-term work contract. Individual ability is proxied by the firm-wave average of individual AKM fixed effects from the LIAB data, as calculated from 2010 to 2017. Employee-level survey items are described in Section 2 and in Table A.1 in the Appendix. Standard errors clustered on the establishment level are reported in parentheses. The symbols \*, \*\*, and \*\*\* represent significance levels of 10%, 5%, and 1%, respectively.

TABLE A.4  
DETERMINANTS OF ANTISOCIAL BEHAVIOR

Dep. variable:	Antisocial behavior (std.)			
	(1)	(2)	(3)	(4)
Leadership quality	-0.3553*** (0.0252)			-0.3032*** (0.0244)
Conscientiousness		0.0285 (0.0283)		0.0044 (0.0265)
Extraversion		-0.0689** (0.0277)		-0.0368 (0.0247)
Neuroticism		0.1638*** (0.0307)		0.1068*** (0.0284)
Openness		-0.0215 (0.0291)		0.0142 (0.0260)
Agreeableness		-0.0767** (0.0304)		-0.0373 (0.0288)
Trust			-0.2552*** (0.0298)	-0.1558*** (0.0275)
Positive reciprocity			-0.0107 (0.0258)	-0.0339 (0.0241)
Negative reciprocity			-0.0058 (0.0303)	-0.0143 (0.0285)
Altruism			-0.0622** (0.0274)	-0.0398 (0.0249)
Structured management	-0.0554 (0.0435)	-0.0944** (0.0465)	-0.1017** (0.0450)	-0.0366 (0.0419)
Base controls	Yes	Yes	Yes	Yes
Individual ability	Yes	Yes	Yes	Yes
Job controls	Yes	Yes	Yes	Yes
Adj. R-squared	0.18	0.10	0.12	0.22
Observations	1,703	1,703	1,703	1,703

NOTE.—Sample refreshers are excluded from this analysis. The dependent variable is the standardized firm-wave average of antisocial behavior. Only establishments with at least three employee respondents per firm-wave cell used. All continuous independent variables of interest are standardized with mean zero and unit variance. We estimate weighted least squares (WLS) regressions with cell size (the number of individual observations per firm-wave cell) as weights. Our set of base controls includes time and risk preferences, self-efficacy, school education, vocational and university education, gender, age categories, partner, living alone, interview method, survey wave, industry, region, establishment size, and ownership type. Job controls include the logarithm of the monthly net wage, white collar, task interdependence, management position, part-time, and fixed-term work contract. Individual ability is proxied by the firm-wave average of individual AKM fixed effects from the LIAB data, as calculated from 2010 to 2017. Employee-level survey items are described in Section 2 and in Table A.1 in the Appendix. Standard errors clustered on the establishment level in parentheses. The symbols \*, \*\*, and \*\*\* represent significance levels of 10%, 5%, and 1%, respectively.

TABLE A.5  
FIRM FIXED EFFECTS AND LDV ESTIMATES OF HELPING AND ANTISOCIAL BEHAVIOR ON  
LEADERSHIP

Dep. variable:	Helping index (std.)		Antisocial behavior (std.)	
	(1) FE	(2) LDV	(3) FE	(4) LDV
Leadership quality	0.1175** (0.0555)	0.1195*** (0.0351)	-0.2788*** (0.0544)	-0.2635*** (0.0324)
Base controls	Yes	Yes	Yes	Yes
Individual ability	Yes	Yes	Yes	Yes
Job controls	Yes	Yes	Yes	Yes
Preferences, Big 5, management style	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	No	Yes	No
Lagged dependent variable	No	Yes	No	Yes
Adj. R-squared	0.36	0.23	0.40	0.22
Observations	1,703	877	1,703	877

NOTE.—Sample refreshers are excluded from this analysis. The dependent variable in columns (1) and (2), “Helping index”, is an index containing the standardized firm-wave average of two helping items, help given, and help received. The dependent variable in columns (3) and (4) is the standardized firm-wave average of antisocial behavior. Only establishments with at least three employee respondents per firm-wave cell used. All continuous independent variables of interest are standardized with mean zero and unit variance. We estimate weighted least squares (WLS) regressions with cell size (the number of individual observations per firm-wave cell) as weights. Our set of base controls includes time and risk preferences, self-efficacy, school education, vocational and university education, gender, age categories, partner, living alone, interview method, survey wave, industry, region, establishment size, and ownership type. Job controls include the logarithm of the monthly net wage, white collar, task interdependence, management position, part-time, and fixed-term work contract. Individual ability is proxied by the firm-wave average of individual AKM fixed effects from the LIAB data, as calculated from 2010 to 2017. Employee-level survey items are described in Section 2 and in Table A.1 in the Appendix. Standard errors clustered on the establishment level are reported in parentheses. The symbols \*, \*\*, and \*\*\* represent significance levels of 10%, 5%, and 1%, respectively.

TABLE A.6  
DETERMINANTS OF HELPING

Dep. variable:	Helping index (std.)			
	(1)	(2)	(3)	(4)
Leadership quality	0.2167*** (0.0355)			0.1445*** (0.0361)
Conscientiousness		0.0240 (0.0383)		0.0526 (0.0370)
Extraversion		0.0726** (0.0356)		0.0524 (0.0348)
Neuroticism		-0.0604* (0.0348)		-0.0203 (0.0340)
Openness		0.0421 (0.0417)		0.0150 (0.0400)
Agreeableness		0.1734*** (0.0370)		0.1366*** (0.0343)
Trust			0.2168*** (0.0395)	0.1516*** (0.0382)
Positive reciprocity			-0.0115 (0.0309)	-0.0040 (0.0301)
Negative reciprocity			-0.0098 (0.0332)	0.0425 (0.0321)
Altruism			0.1061*** (0.0361)	0.0867** (0.0356)
Structured management	0.0709 (0.0489)	0.0980** (0.0492)	0.1067** (0.0496)	0.0571 (0.0462)
Base controls	Yes	Yes	Yes	Yes
Individual ability	Yes	Yes	Yes	Yes
Job controls	Yes	Yes	Yes	Yes
Adj. R-squared	0.25	0.25	0.25	0.30
Observations	924	924	924	924

NOTE.—This analysis only uses a balanced panel of firms. The dependent variable “Helping index” is an index containing the standardized firm-wave average of two helping items, help given, and help received. Only establishments with at least three employee respondents per firm-wave cell used. All continuous independent variables of interest are standardized with mean zero and unit variance. We estimate weighted least squares (WLS) regressions with cell size (the number of individual observations per firm-wave cell) as weights. Our set of base controls includes time and risk preferences, self-efficacy, school education, vocational and university education, gender, age categories, partner, living alone, interview method, survey wave, industry, region, establishment size, and ownership type. Job controls include the logarithm of the monthly net wage, white collar, task interdependence, management position, part-time, and fixed-term work contract. Individual ability is proxied by the firm-wave average of individual AKM fixed effects from the LIAB data, as calculated from 2010 to 2017. Employee-level survey items are described in Section 2 and in Table A.1 in the Appendix. Standard errors clustered on the establishment level are reported in parentheses. The symbols \*, \*\*, and \*\*\* represent significance levels of 10%, 5%, and 1%, respectively.

TABLE A.7  
DETERMINANTS OF ANTISOCIAL BEHAVIOR

Dep. variable:	Antisocial behavior (std.)			
	(1)	(2)	(3)	(4)
Leadership quality	-0.4251*** (0.0340)			-0.3454*** (0.0320)
Conscientiousness		0.0719* (0.0395)		0.0495 (0.0360)
Extraversion		-0.0897** (0.0372)		-0.0517 (0.0333)
Neuroticism		0.2375*** (0.0379)		0.1663*** (0.0347)
Openness		-0.0120 (0.0425)		0.0268 (0.0363)
Agreeableness		-0.1371*** (0.0403)		-0.0682 (0.0388)
Trust			-0.3176*** (0.0398)	-0.1630*** (0.0364)
Positive reciprocity			0.0150 (0.0372)	-0.0274 (0.0338)
Negative reciprocity			0.0504 (0.0380)	0.0248 (0.0344)
Altruism			-0.0448 (0.0336)	-0.0228 (0.0316)
Structured management	-0.0185 (0.0553)	-0.0922* (0.0550)	-0.1080* (0.0563)	-0.0042 (0.0521)
Base controls	Yes	Yes	Yes	Yes
Individual ability	Yes	Yes	Yes	Yes
Job controls	Yes	Yes	Yes	Yes
Adj. R-squared	0.25	0.17	0.17	0.31
Observations	924	924	924	924

NOTE.—This analysis only uses a balanced panel of firms. The dependent variable is the standardized firm-wave average of antisocial behavior. Only establishments with at least three employee respondents per firm-wave cell used. All continuous independent variables of interest are standardized with mean zero and unit variance. We estimate weighted least squares (WLS) regressions with cell size (the number of individual observations per firm-wave cell) as weights. Our set of base controls includes time and risk preferences, self-efficacy, school education, vocational and university education, gender, age categories, partner, living alone, interview method, survey wave, industry, region, establishment size, and ownership type. Job controls include the logarithm of the monthly net wage, white collar, task interdependence, management position, part-time, and fixed-term work contract. Individual ability is proxied by the firm-wave average of individual AKM fixed effects from the LIAB data, as calculated from 2010 to 2017. Employee-level survey items are described in Section 2 and in Table A.1 in the Appendix. Standard errors clustered on the establishment level in parentheses. The symbols \*, \*\*, and \*\*\* represent significance levels of 10%, 5%, and 1%, respectively.

TABLE A.8  
FIRM FIXED EFFECTS AND LDV ESTIMATES OF HELPING AND ANTISOCIAL BEHAVIOR ON  
LEADERSHIP

Dep. variable:	Helping index (std.)		Antisocial behavior (std.)	
	(1) FE	(2) LDV	(3) FE	(4) LDV
Leadership quality	0.1482*** (0.0563)	0.1482*** (0.0400)	-0.3527*** (0.0585)	-0.3057*** (0.0358)
Base controls	Yes	Yes	Yes	Yes
Individual ability	Yes	Yes	Yes	Yes
Job controls	Yes	Yes	Yes	Yes
Preferences, Big 5, management style	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	No	Yes	No
Lagged dependent variable	No	Yes	No	Yes
Adj. R-squared	0.46	0.33	0.44	0.34
Observations	924	623	924	623

NOTE.—This analysis only uses a balanced panel of firms. The dependent variable in columns (1) and (2), “Helping index”, is an index containing the standardized firm-wave average of two helping items, help given, and help received. The dependent variable in columns (3) and (4) is the standardized firm-wave average of antisocial behavior. Only establishments with at least three employee respondents per firm-wave cell used. All continuous independent variables of interest are standardized with mean zero and unit variance. We estimate weighted least squares (WLS) regressions with cell size (the number of individual observations per firm-wave cell) as weights. Our set of base controls includes time and risk preferences, self-efficacy, school education, vocational and university education, gender, age categories, partner, living alone, interview method, survey wave, industry, region, establishment size, and ownership type. Job controls include the logarithm of the monthly net wage, white collar, task interdependence, management position, part-time, and fixed-term work contract. Individual ability is proxied by the firm-wave average of individual AKM fixed effects from the LIAB data, as calculated from 2010 to 2017. Employee-level survey items are described in Section 2 and in Table A.1 in the Appendix. Standard errors clustered on the establishment level are reported in parentheses. The symbols \*, \*\*, and \*\*\* represent significance levels of 10%, 5%, and 1%, respectively.

TABLE A.9  
DETERMINANTS OF HELPING

Dep. variable:	Helping index (std.)			
	(1)	(2)	(3)	(4)
Leadership quality	0.2046*** (0.0201)			0.1673*** (0.0205)
Conscientiousness		0.0529** (0.0218)		0.0454** (0.0212)
Extraversion		0.0382* (0.0214)		0.0309 (0.0211)
Neuroticism		-0.1095*** (0.0201)		-0.0824*** (0.0200)
Openness		0.0480** (0.0217)		0.0278 (0.0211)
Agreeableness		0.0796*** (0.0203)		0.0408* (0.0208)
Trust			0.1298*** (0.0220)	0.0724*** (0.0222)
Positive reciprocity			0.0506*** (0.0195)	0.0408** (0.0193)
Negative reciprocity			-0.0174 (0.0209)	0.0077 (0.0215)
Altruism			0.1029*** (0.0203)	0.0876*** (0.0201)
Structured management	0.0535 (0.0344)	0.0692** (0.0351)	0.0668* (0.0345)	0.0393 (0.0340)
Base controls	Yes	Yes	Yes	Yes
Individual ability	Yes	Yes	Yes	Yes
Job controls	Yes	Yes	Yes	Yes
Adj. R-squared	0.10	0.09	0.09	0.13
Observations	3,136	3,136	3,136	3,136

NOTE.—Analysis at the functional area level within each establishment. The dependent variable “Helping index” is an index containing the standardized functional area by firm-wave average of two helping items, help given, and help received. Only establishments with at least three employee respondents per firm-wave cell used. All continuous independent variables of interest are standardized with mean zero and unit variance. We estimate weighted least squares (WLS) regressions with cell size (the number of individual observations per functional area-firm-wave cell) as weights. Our set of base controls includes time and risk preferences, self-efficacy, school education, vocational and university education, gender, age categories, partner, living alone, interview method, survey wave, industry, region, establishment size, and ownership type. Job controls include the logarithm of the monthly net wage, white collar, task interdependence, management position, part-time, and fixed-term work contract. Individual ability is proxied by the functional area by firm-wave average of individual AKM fixed effects from the LIAB data, as calculated from 2010 to 2017. Employee-level survey items are described in Section 2 and in Table A.1 in the Appendix. Standard errors clustered on the establishment by functional area level are reported in parentheses. The symbols \*, \*\*, and \*\*\* represent significance levels of 10%, 5%, and 1%, respectively.



TABLE A.10  
DETERMINANTS OF ANTISOCIAL BEHAVIOR

Dep. variable:	Antisocial behavior (std.)			
	(1)	(2)	(3)	(4)
Leadership quality	-0.3668*** (0.0182)			-0.3230*** (0.0177)
Conscientiousness		0.0184 (0.0224)		0.0282 (0.0210)
Extraversion		-0.0096 (0.0209)		-0.0089 (0.0189)
Neuroticism		0.2070*** (0.0216)		0.1484*** (0.0200)
Openness		0.0593*** (0.0203)		0.0764*** (0.0189)
Agreeableness		-0.1237*** (0.0206)		-0.0702*** (0.0204)
Trust			-0.2325*** (0.0204)	-0.1279*** (0.0190)
Positive recipr.			0.0038 (0.0195)	-0.0031 (0.0182)
Negative recipr.			0.0466** (0.0194)	0.0156 (0.0185)
Altruism			-0.0122 (0.0205)	-0.0062 (0.0188)
Structured management	0.0036 (0.0316)	-0.0356 (0.0330)	-0.0388 (0.0333)	0.0077 (0.0304)
Base controls	Yes	Yes	Yes	Yes
Individual ability	Yes	Yes	Yes	Yes
Job controls	Yes	Yes	Yes	Yes
Adj. R-squared	0.18	0.12	0.11	0.24
Observations	3,132	3,132	3,132	3,132

NOTE.—Analysis at the functional area level within each establishment. Only establishments with at least three employee respondents per firm-wave cell used. The dependent variable is the standardized functional area by firm-wave average of antisocial behavior. All continuous independent variables of interest are standardized with mean zero and unit variance. We estimate weighted least squares (WLS) regressions with cell size (the number of individual observations per functional area by firm-wave cell) as weights. Our set of base controls includes time and risk preferences, self-efficacy, school education, vocational and university education, gender, age categories, partner, living alone, interview method, survey wave, industry, region, establishment size, and ownership type. Job controls include the logarithm of the monthly net wage, white collar, task interdependence, management position, part-time, and fixed-term work contract. Individual ability is proxied by the functional area by firm-wave average of individual AKM fixed effects from the LIAB data, as calculated from 2010 to 2017. Employee-level survey items are described in Section 2 and in Table A.1 in the Appendix. Standard errors clustered on the establishment by functional area level in parentheses. The symbols \*, \*\*, and \*\*\* represent significance levels of 10%, 5%, and 1%, respectively.

TABLE A.11  
FIRM FIXED EFFECTS AND LDV ESTIMATES OF HELPING AND ANTISOCIAL BEHAVIOR ON  
LEADERSHIP

Dep. variable:	Helping index (std.)		Antisocial behavior (std.)	
	(1) FE	(2) LDV	(3) FE	(4) LDV
Leadership quality	0.1275* (0.0666)	0.1141*** (0.0332)	-0.3111*** (0.0571)	-0.3162*** (0.0308)
Base controls	Yes	Yes	Yes	Yes
Individual ability	Yes	Yes	Yes	Yes
Job controls	Yes	Yes	Yes	Yes
Preferences, Big 5, management style	Yes	Yes	Yes	Yes
Functional area $\times$ firm fixed effects	Yes	No	Yes	No
Lagged dependent variable	No	Yes	No	Yes
Adj. R-squared	0.33	0.19	0.39	0.25
Observations	3,136	1,066	3,132	1,063

NOTE.—Analysis at the functional area level within each establishment. The dependent variable in columns (1) and (2), “Helping index”, is an index containing the standardized functional area by firm-wave average of two helping items, help given, and help received. The dependent variable in columns (3) and (4) is the standardized functional area by firm-wave average of antisocial behavior. Only establishments with at least three employee respondents per firm-wave cell used. All continuous independent variables of interest are standardized with mean zero and unit variance. We estimate weighted least squares (WLS) regressions with cell size (the number of individual observations per functional area-firm-wave cell) as weights. Our set of base controls includes time and risk preferences, self-efficacy, school education, vocational and university education, gender, age categories, partner, living alone, interview method, survey wave, industry, region, establishment size, and ownership type. Job controls include the logarithm of the monthly net wage, white collar, task interdependence, management position, part-time, and fixed-term work contract. Individual ability is proxied by the functional area by firm-wave average of individual AKM fixed effects from the LIAB data, as calculated from 2010 to 2017. Employee-level survey items are described in Section 2 and in Table A.1 in the Appendix. Standard errors clustered on the establishment by functional area level are reported in parentheses. The symbols \*, \*\*, and \*\*\* represent significance levels of 10%, 5%, and 1%, respectively.

TABLE A.12  
DETERMINANTS OF HELP RECEIVED

Dep. variable:	Help received (std.)			
	(1)	(2)	(3)	(4)
Leadership quality	0.2354*** (0.0240)			0.1837*** (0.0238)
Conscientiousness		-0.0249 (0.0257)		-0.0123 (0.0250)
Extraversion		0.0523** (0.0262)		0.0395 (0.0255)
Neuroticism		-0.0863*** (0.0253)		-0.0446* (0.0250)
Openness		0.0186 (0.0276)		-0.0095 (0.0263)
Agreeableness		0.1284*** (0.0258)		0.0870*** (0.0247)
Trust			0.2313*** (0.0290)	0.1689*** (0.0293)
Positive reciprocity			0.0240 (0.0225)	0.0292 (0.0227)
Negative reciprocity			-0.0069 (0.0258)	0.0162 (0.0255)
Altruism			0.0701*** (0.0254)	0.0581** (0.0245)
Structured management	0.0853** (0.0395)	0.1087*** (0.0406)	0.1167*** (0.0400)	0.0683* (0.0385)
Base controls	Yes	Yes	Yes	Yes
Individual ability	Yes	Yes	Yes	Yes
Job controls	Yes	Yes	Yes	Yes
Adj. R-squared	0.17	0.15	0.17	0.21
Observations	2,002	2,002	2,002	2,002

NOTE.—The dependent variable “Help received” is the standardized firm-wave average of the associated survey item. Only establishments with at least three employee respondents per firm-wave cell used. All continuous independent variables are standardized with mean zero and unit variance. We estimate weighted least squares (WLS) regressions with cell size (the number of individual observations per firm-wave cell) as weights. Our set of base controls includes time and risk preferences, self-efficacy, school education, vocational and university education, gender, age categories, partner, living alone, interview method, survey wave, industry, region, establishment size, and ownership type. Job controls include the logarithm of the monthly net wage, white collar, task interdependence, management position, part-time, and fixed-term work contract. Standard errors clustered on the establishment level in parentheses. The symbols \*, \*\*, and \*\*\* represent significance levels of 10%, 5%, and 1%, respectively.

TABLE A.13  
DETERMINANTS OF HELP OFFERED

Dep. variable:	Help offered (std.)			
	(1)	(2)	(3)	(4)
Leadership quality	0.1078*** (0.0236)			0.0663*** (0.0233)
Conscientiousness		0.0675** (0.0265)		0.0731*** (0.0265)
Extraversion		0.0616** (0.0255)		0.0532** (0.0256)
Neuroticism		-0.0440* (0.0256)		-0.0315 (0.0261)
Openness		0.0743*** (0.0272)		0.0585** (0.0269)
Agreeableness		0.0862*** (0.0264)		0.0659** (0.0267)
Trust			0.1076*** (0.0286)	0.0784*** (0.0286)
Positive recipr.			0.0596** (0.0234)	0.0521** (0.0231)
Negative recipr.			-0.0133 (0.0245)	0.0152 (0.0247)
Altruism			0.0716*** (0.0258)	0.0575** (0.0254)
Structured management	0.0917** (0.0412)	0.0898** (0.0408)	0.0988** (0.0412)	0.0695* (0.0412)
Base controls	Yes	Yes	Yes	Yes
Individual ability	Yes	Yes	Yes	Yes
Job controls	Yes	Yes	Yes	Yes
Adj. R-squared	0.14	0.15	0.14	0.17
Observations	2,002	2,002	2,002	2,002

NOTE.—The dependent variable “Help offered” is the standardized firm-wave average of the associated survey item. Only establishments with at least three employee respondents per firm-wave cell used. All continuous independent variables are standardized with mean zero and unit variance. We estimate weighted least squares (WLS) regressions with cell size (the number of individual observations per firm-wave cell) as weights. Our set of base controls includes time and risk preferences, self-efficacy, school education, vocational and university education, gender, age categories, partner, living alone, interview method, survey wave, industry, region, establishment size, and ownership type. Job controls include the logarithm of the monthly net wage, white collar, task interdependence, management position, part-time, and fixed-term work contract. Standard errors clustered on the establishment level in parentheses. The symbols \*, \*\*, and \*\*\* represent significance levels of 10%, 5%, and 1%, respectively.

TABLE A.14  
FIRM FIXED EFFECTS AND LDV ESTIMATES OF HELP RECEIVED AND HELP  
OFFERED ON LEADERSHIP

Dep. variable:	Help received (std.)		Help offered (std.)	
	(1)	(2)	(3)	(4)
	FE	LDV	FE	LDV
Leadership quality	0.1410** (0.0559)	0.1631*** (0.0347)	0.0505 (0.0558)	0.0566* (0.0343)
Base controls	Yes	Yes	Yes	Yes
Individual ability	Yes	Yes	Yes	Yes
Job controls	Yes	Yes	Yes	Yes
Preferences, Big 5, management style	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	No	Yes	No
Lagged dep. var.	No	Yes	No	Yes
Adj. R-squared	0.38	0.27	0.33	0.19
Observations	2,002	973	2,002	973

NOTE.—The dependent variables “Help received” and “Help offered” are the standardized firm-wave averages of the associated survey items. Only establishments with at least three employee respondents per firm-wave cell used. All continuous independent variables of interest are standardized with mean zero and unit variance. We estimate weighted least squares (WLS) regressions with cell size (the number of individual observations per firm-wave cell) as weights. Our set of base controls includes time and risk preferences, self-efficacy, school education, vocational and university education, gender, age categories, partner, living alone, interview method, survey wave, industry, region, establishment size, and ownership type. Job controls include the logarithm of the monthly net wage, white collar, task interdependence, management position, part-time, and fixed-term work contract. Individual ability is proxied by the firm-wave average of individual AKM fixed effects from the LIAB data, as calculated from 2010 to 2017. Employee-level survey items are described in Section 2 and in Table A.1 in the Appendix. Standard errors clustered on the establishment level are reported in parentheses. The symbols \*, \*\*, and \*\*\* represent significance levels of 10%, 5%, and 1%, respectively.

TABLE A.15  
ORIV RANDOM AND FIRM FIXED EFFECTS ESTIMATES OF HELPING AND ANTISOCIAL  
BEHAVIOR ON LEADERSHIP (2ND STAGE)

Dep. variable:	Helping index (std.)		Antisocial behavior (std.)	
	RE (1)	FE (2)	RE (3)	FE (4)
Leadership quality	0.1697*** (0.0635)	0.1731** (0.0742)	-0.5760*** (0.0522)	-0.5647*** (0.0722)
Base controls	Yes	Yes	Yes	Yes
Individual ability	Yes	Yes	Yes	Yes
Job controls	Yes	Yes	Yes	Yes
Preferences, Big 5, management style	Yes	Yes	Yes	Yes
Random effects	Yes	No	Yes	No
Firm fixed effects	No	Yes	No	Yes
(Within) R-squared	0.27	(0.22)	0.17	(0.15)
Observations	1,946	4,004	1,946	4,004

NOTE.—We apply the ORIV procedure of Gillen, Snowberg, and Yariv (2019), and use supervisor trust and supervisor understanding as instruments for each other in a stacked IV regression design, additionally with a LDV or with firm fixed effects. The dependent variable in columns (1) and (2), “Helping index”, is an index containing the standardized firm-wave average of two helping items, help offered, and help received. The dependent variable in columns (3) and (4) is the standardized firm-wave average of antisocial behavior. Only establishments with at least three employee respondents per firm-wave cell used. All continuous independent variables of interest are standardized with mean zero and unit variance. We estimate weighted two-stage least squares regressions with cell size (the number of individual observations per firm-wave cell) as weights and report second-stage estimates. Our set of base controls includes time and risk preferences, self-efficacy, school education, vocational and university education, gender, age categories, partner, living alone, interview method, survey wave, industry, region, establishment size, and ownership type. Job controls include the logarithm of the monthly net wage, white collar, task interdependence, management position, part-time, and fixed-term work contract. Individual ability is proxied by the firm-wave average of individual AKM fixed effects from the LIAB data, as calculated from 2010 to 2017. Employee- and establishment-level survey items are described in Section 2 and in Table A.1 in the Appendix. Standard errors clustered on the establishment level are reported in parentheses. The symbols \*, \*\*, and \*\*\* represent significance levels of 10%, 5%, and 1%, respectively.

TABLE A.16  
DETERMINANTS OF HELPING

Dep. variable:	Helping index (std.) <sub>t+1</sub>			
	(1)	(2)	(3)	(4)
Leadership quality	0.1372*** (0.0343)			0.1098*** (0.0347)
Conscientiousness		-0.0126 (0.0409)		0.0020 (0.0407)
Extraversion		-0.0195 (0.0392)		-0.0372 (0.0388)
Neuroticism		-0.0498 (0.0343)		-0.0316 (0.0359)
Openness		-0.0032 (0.0419)		-0.0308 (0.0405)
Agreeableness		0.0799** (0.0387)		0.0316 (0.0379)
Trust			0.1500*** (0.0426)	0.1190*** (0.0443)
Positive reciprocity			0.0660** (0.0314)	0.0733** (0.0319)
Negative reciprocity			-0.0313 (0.0356)	-0.0261 (0.0359)
Altruism			0.0904*** (0.0351)	0.0871** (0.0357)
Structured management	0.0072 (0.0564)	0.0319 (0.0569)	0.0154 (0.0557)	-0.0049 (0.0556)
Base controls	Yes	Yes	Yes	Yes
Individual ability	Yes	Yes	Yes	Yes
Job controls	Yes	Yes	Yes	Yes
Adj. R-squared	0.10	0.09	0.12	0.12
Observations	1,267	1,267	1,267	1,267

NOTE.—Results using outcomes from the next survey wave. The dependent variable “Helping index” is an index containing the standardized firm-wave average of two helping items, help offered, and help received. Only establishments with at least three employee respondents per firm-wave cell used. All continuous independent variables of interest are standardized with mean zero and unit variance. We estimate weighted least squares (WLS) regressions with cell size (the number of individual observations per firm-wave cell) as weights. Our set of base controls includes time and risk preferences, self-efficacy, school education, vocational and university education, gender, age categories, partner, living alone, interview method, survey wave, industry, region, establishment size, and ownership type. Job controls include the logarithm of the monthly net wage, white collar, task interdependence, management position, part-time, and fixed-term work contract. Individual ability is proxied by the firm-wave average of individual AKM fixed effects from the LIAB data, as calculated from 2010 to 2017. Employee-level survey items are described in Section 2 and in Table A.1 in the Appendix. Standard errors clustered on the establishment level are reported in parentheses. The symbols \*, \*\*, and \*\*\* represent significance levels of 10%, 5%, and 1%, respectively.

TABLE A.17  
DETERMINANTS OF ANTISOCIAL BEHAVIOR

Dep. variable:	Antisocial behavior (std.) <sub>t+1</sub>			
	(1)	(2)	(3)	(4)
Leadership quality	-0.2406*** (0.0333)			-0.2239*** (0.0313)
Conscientiousness		0.0603 (0.0406)		0.0575 (0.0382)
Extraversion		-0.0030 (0.0367)		0.0164 (0.0353)
Neuroticism		0.1451*** (0.0371)		0.1151*** (0.0366)
Openness		0.0192 (0.0417)		0.0451 (0.0393)
Agreeableness		-0.0360 (0.0390)		0.0006 (0.0384)
Trust			-0.1418*** (0.0420)	-0.0714* (0.0397)
Positive reciprocity			-0.0444 (0.0326)	-0.0646** (0.0307)
Negative reciprocity			0.0175 (0.0343)	0.0199 (0.0329)
Altruism			-0.0114 (0.0359)	-0.0050 (0.0347)
Structured management	-0.0513 (0.0548)	-0.0892 (0.0547)	-0.0939* (0.0557)	-0.0421 (0.0546)
Base controls	Yes	Yes	Yes	Yes
Individual ability	Yes	Yes	Yes	Yes
Job controls	Yes	Yes	Yes	Yes
Adj. R-squared	0.10	0.07	0.07	0.12
Observations	1,267	1,267	1,267	1,267

NOTE.—Results using outcomes from the next survey wave. The dependent variable is the standardized firm-wave average of antisocial behavior. Only establishments with at least three employee respondents per firm-wave cell used. All continuous independent variables of interest are standardized with mean zero and unit variance. We estimate weighted least squares (WLS) regressions with cell size (the number of individual observations per firm-wave cell) as weights. Our set of base controls includes time and risk preferences, self-efficacy, school education, vocational and university education, gender, age categories, partner, living alone, interview method, survey wave, industry, region, establishment size, and ownership type. Job controls include the logarithm of the monthly net wage, white collar, task interdependence, management position, part-time, and fixed-term work contract. Individual ability is proxied by the firm-wave average of individual AKM fixed effects from the LIAB data, as calculated from 2010 to 2017. Employee-level survey items are described in Section 2 and in Table A.1 in the Appendix. Standard errors clustered on the establishment level in parentheses. The symbols \*, \*\*, and \*\*\* represent significance levels of 10%, 5%, and 1%, respectively.



TABLE A.18  
HELPING AND ANTISOCIAL BEHAVIOR ON STRUCTURED MANAGEMENT

Dep. variable:	Helping index (std.)		Antisocial behavior (std.)	
	(1)	(2)	(3)	(4)
	Below median leadership	Above median leadership	Below median leadership	Above median leadership
Structured management	0.0681 (0.0547)	0.1223** (0.0614)	-0.0441 (0.0577)	-0.0458 (0.0573)
Base controls	Yes	Yes	Yes	Yes
Individual ability	Yes	Yes	Yes	Yes
Job controls	Yes	Yes	Yes	Yes
Preferences, Big 5	Yes	Yes	Yes	Yes
Observations	2,002	973	2,002	973

NOTE.—The dependent variable in columns (1) and (2), “Helping index”, is an index containing the standardized firm-wave average of two helping items, help offered, and help received. The dependent variable in columns (3) and (4) is the standardized firm-wave average of antisocial behavior. Only establishments with at least three employee respondents per firm-wave cell used. All continuous independent variables of interest are standardized with mean zero and unit variance. We estimate weighted least squares (WLS) regressions with cell size (the number of individual observations per firm-wave cell) as weights. Our set of base controls includes time and risk preferences, self-efficacy, school education, vocational and university education, gender, age categories, partner, living alone, interview method, survey wave, industry, region, establishment size, and ownership type. Job controls include the logarithm of the monthly net wage, white collar, task interdependence, management position, part-time, and fixed-term work contract. Individual ability is proxied by the firm-wave average of individual AKM fixed effects from the LIAB data, as calculated from 2010 to 2017. Employee-level survey items are described in Section 2 and in Table A.1 in the Appendix. Standard errors clustered on the establishment level are reported in parentheses. The symbols \*, \*\*, and \*\*\* represent significance levels of 10%, 5%, and 1%, respectively.