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Running against Windmills: Costly Perseverance in Long- and Short-Term Goal Pursuit

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Abstract

This paper provides evidence of costly perseverance in the field. In a setting where consultants select and pursue projects autonomously, I show that perseverance is related with fewer successfully completed projects as well as lower sales and commissions. Using rich firm data on individual job activity, I shed light on the task-specific behavioral mechanisms. Overall, perseverant consultants start fewer projects. In fast markets, the lower number of projects started is the main channel of costly perseverance; in slower markets, costs primarily arise from pursuing projects in a more isolated and uninformed way, as shown by an inefficient allocation of effort between stakeholders. The survey questions driving costly perseverance point to the consultants' failure to incorporate negative signals and opportunity costs into their effort allocation. Using heterogeneity within and between consultants' task assignment, I show that perseverance is more costly in exploration tasks as opposed to well-defined tasks characterized by mere exploitation.

Keywords: grit, job performance, productivity, tenacity, motivation

JEL Codes: M51, J24, J63

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1 Introduction

A key result of microeconomic theory is that the optimal effort level for a given task is reached when marginal productivity equals marginal costs. In the context of the organization, inefficiency is most often thought to arise from the underprovision of effort. Firms introduce incentives to attract able workers and increase worker effort. Regarding preferences and personality, incentives attract competitive and ambitious workers. Perseverance, commonly understood as the provision of effort *despite* difficulty, is most widely thought of as a positive trait that firms may screen for. Psychologists and economists have argued that perseverance is among the personality traits that matter for success in educational and labor market outcomes (Duckworth et al., 2007; Heckman and Kautz, 2012; Alan et al., 2019).

However, perseverance can come along with inefficiencies. First, people endogenously select into the tasks and goals they pursue. Perseverant individuals may choose goals for which their effort and opportunity costs are high. Once a goal is chosen, perseverance may undermine the ability to abandon the goal or to update strategies when optimal. Perseverant workers may be inclined to the overprovision of effort, undermining long-term productivity. A misallocation of resources may also arise by trying to finish and perfect what is untimely or unnecessary. In the broader organizational context, adverse effects of perseverance may arise from delayed help-seeking (Credé et al., 2017), as well as forborne delegation and cooperation.

This paper analyzes the relationship between perseverance and job performance. Not only do I provide evidence of costly perseverance in the field. My main contribution is that I carve out the mechanisms how perseverance undermines productivity, using rich data on job activity. Additionally, I show that perseverance is more costly in exploration tasks than in exploitation tasks. I observe a sample of 168 junior consultants during their first up to 3 years on the job. A unique advantage of this setting is that job performance is measured quantitatively and objectively. Moreover, the data include not only final job success but also intermediate measures of job activity, all observed on the monthly level. Using variation in job assignment, I demonstrate that the mechanisms of costly perseverance are task-specific. In the fast market, perseverant consultants perform worse because they start fewer projects, failing to abandon old projects in favor of new ones. In the slower market, characterized by longer-term projects that offer more strategic wiggle room, perseverant consultants not only start fewer projects, but also differ in how they manage a given project. Here perseverant consultants mainly perform worse

because they communicate less with their most important stakeholders.

I measure perseverance by a set of survey questions contained in the Grit Scale (Duckworth et al., 2007). The construct of grit was introduced as the sum of its two components, perseverance of effort and consistency of interest. The latter—also called “passion for long-term goals”—measures whether a subject’s interests change frequently or are stable over time. I measure each component of grit by the corresponding 6 survey questions contained in the Grit Scale.

Grit has been investigated as the key to success for a wide range of outcomes. Meta-analyses and field experiments establish a positive effect of grit in educational settings (Credé et al., 2017; Alan et al., 2019). However, its relevance to job performance has not been established (Ion et al., 2017), especially when it comes to objectively and quantitatively measured job performance. My findings suggest that the predictive potential of grit for workplace outcomes may be blurred by aggregating conceptually different components into a single trait. In my setting, consistency relates positively with job performance but perseverance counteracts this with a negative partial relationship. As a result, grit is unrelated with overall job performance. Disentangling job performance into different task components, I find that perseverance is more costly in novel and multidimensional tasks as opposed to tasks characterized by mere exploitation. These heterogeneities are in line with Credé et al. (2017), who argue that grit is more beneficial when tasks are well-defined but potentially costly when tasks are novel and ill-defined.

The idea of costly perseverance dates back to early laboratory experiments in psychology research. McFarlin et al. (1984) show that subjects engaging in “nonproductive persistence” spend more time on unsolvable tasks in the presence of alternatives. In an incentivized experiment, Lucas et al. (2015) show that grittier subjects spend more time on unsolvable tasks and remain longer in preprogrammed losing conditions. In the economics literature, Alaoui and Fons-Rosen (2021) show that grittier subjects are more likely to overplay in roulette with respect to their ex-ante plan of action. But does costly perseverance only occur in mouse click or roulette games in the lab, or also in the workplace, where substantial monetary incentives, monitoring and career concerns affect workers’ effort provision?

I show that costly perseverance also occurs in a high-stakes work environment, with performance measured over a long period of time. Consistent with previous lab evidence, my results underline tenacity as an important source of costly perseverance. In Alaoui and Fons-Rosen (2021), costly behavior is driven by the survey questions classified as tenacity, where the items “setbacks

don't discourage me" and "I finish everything I begin" are the most unambiguously assigned to tenacity. The same two survey questions are among the drivers of costly perseverance in my setting. Moreover, I can control for economic preferences, which are elicited in the survey and are therefore unrelated to the task. Connecting to Lucas et al. (2015), my setting allows me to analyze whether perseverant workers perform more poorly or are more likely to stay despite poor performance in a job characterized by steep incentives.

Exploiting rich data on job activity and fine-grained personality items, I show that costly perseverance manifests differently depending on whether short-term or longer-term goals are pursued. Consultants have different job assignments: some work in a fast and dynamic market environment and others in a slower one. In the fast market, working for too long on a goal or trying to finish everything begun are the drivers of costly perseverance. In the slower market, projects take longer and tasks are more multidimensional and less well-defined. Here consultants who strongly agree to "setbacks don't discourage me" perform worse, pointing to a lower responsiveness to feedback. How agents perceive and interpret information matters for economic decision making. For instance, Buser et al. (2018) investigate responsiveness to feedback as a personality trait, showing that low responsiveness to feedback encourages competition entry in the presence of informative but noisy negative signals. Similarly, overconfident CEOs are prone to self-serving bias, respond less to corrective feedback, and exhibit poorer listening skills (Malmendier et al., 2013; Chen et al., 2015; Kaplan et al., 2022).

I also contribute to research on task juggling, optimal stopping rules, and goal pursuit. One trade-off familiar to researchers is whether to keep working on old projects or to start looking for new ones (McCardle et al., 2018). A panel study among university professors suggests that grit is not always better, but rather has a nonlinear relationship with reported goal progress (Khan et al., 2020). In my setting, perseverance relates negatively with the number of projects completed, which is partly explained by a lower number of projects started. My results contrast the negative effects of task juggling in Coviello et al. (2014) and Coviello et al. (2015). While task juggling can undermine productivity in a bureaucratic setting where all projects must be completed and are exogenously assigned, my results suggest that task juggling may have benefits when workers select and prioritize projects endogenously.

Overall, the literature in management and psychology has increasingly highlighted the importance of self-regulation and goal disengagement for maintaining long-term performance (Bre-

dehorst et al., 2023; Brandstätter and Bernecker, 2022; Scholer et al., 2024). Overwork is increasingly seen as a threat to both individual and firm productivity (Conzon and Mellody, 2025). This paper demonstrates how perseverance can be related with a misallocation of effort in different workplace settings. Other pieces of evidence are consistent with the idea that perseverance can undermine productivity. For instance, Czerwiński et al. (2022) show that perseverance is linked with overpracticing among music students. Houston et al. (2021) point to the correlation of perseverance with perfectionism. Some survey questions contained in grit, and especially in the perseverance component, are related with tenacity (Alaoui and Fons-Rosen, 2021). But tenacity and perfectionism are motives of effort provision distinct from genuine, intrinsic interest. Therefore I disaggregate the overall grit measure, using perseverance and consistency as separate components, with particular focus on the perseverance component.

The construct of grit has been subject to methodological debate. In particular, the additive model of grit has been conceptually challenged (Credé, 2018). Some evidence suggests that perseverance and consistency should be considered distinct traits (Tynan, 2021). Accordingly, perseverance and consistency have been used as separate regressors within the same regression model (e.g., König-Kersting and Trautmann, 2025). Arguments against this especially apply to a shorter measure of grit, the Grit-S scale (Duckworth and Quinn, 2009), in which consistency of interest may not capture its intended meaning (Jachimowicz et al., 2018). However, I use the longer measure of grit, where consistency of interest additionally includes the items “my interests change from year to year” and “I become interested in new pursuits every few months”. These items measure consistency of interest quite literally and are in contrast to the measure of perseverance, which does not contain aspects of intrinsic interest, ideation, or passion.

This paper proceeds as follows: Sections 2 and 3 introduce the setting and the data. Section 4 presents the main results on costly perseverance and job performance; Section 5 carves out the mechanisms of costly perseverance using rich data on individual job activity. Sections 6 is about perseverance and retention; Section 7 discusses the robustness, the methodology, and the interpretation of the results. Section 8 concludes.

2 The Setting

I observe the performance of 168 newly hired recruitment consultants. All consultants are employed by the same personnel services firm. The consultants’ task is to match candidates to

the vacancies of client firms. From beginning on, consultants pursue this task autonomously. They are in charge of finding vacancies and acquiring clients on their own; they also have to find candidates on their own. The consultants' goal is that clients hire a candidate they introduced. The successful match is called placement, or "deal" in the recruitment jargon. Similar to sales people, consultants are incentivized by substantial commissions in case of a deal.

Consultants face a highly transparent, performance-oriented, and competitive work environment. For more information on this type of job, see Krueger and Friebe (2022). Consultants work in open-space offices and strike a gong whenever a deal is closed. Performance ranks are constructed and displayed on the individual level. Consultants are ranked within organizational units by their performance and these scores are visible to all consultants of the same unit. Performance is also aggregated on the location level, where consultants see the performance rank of their own office compared to the offices in other locations.

By their job assignment, consultants operate within a specific sector and division. Consultants focus on one particular sector, such as IT or engineering, in which they seek clients and candidates. Consultants belong to one out of two divisions, which differ by the speed of the market environment, with implications on project duration.

2.1 The fast and the slower market environment

Consultants belong to either the permanent division or the contract division. In the permanent division, consultants match candidates for long-term employment. In the contract division, consultants place freelancers for temporary projects. The two divisions can be differentiated in terms of project duration and task dimensionality. The distinction between permanent and contract division is common to many personnel services firms. The following description is based on online sources (Parker Shaw, n.d.; Mackay, 2020; Leens, 2021).

The permanent division is a relatively slow market environment in which matching tasks are more multidimensional. Both clients and candidates care about a long-term employment relationship. Candidates change jobs seldom and consultants do not interact with them repeatedly. Entering a long-term employment relationship is a high-stakes commitment for both candidates and clients. The hiring process is more complex, involves more parties, and consequently takes longer. For the consultant, strategic considerations play a larger role. I therefore consider placing a candidate in the permanent division as a relatively long-term project.

The contract division, on the other hand, is a fast-paced and dynamic market environment. Because placements are only temporary, the matching problem is less multidimensional. Clients request candidates on short notice and mostly care about a fast and effective skill match. Consultants build a portfolio of candidates with whom they repeatedly interact. In this process, they obtain knowledge about candidates' ability and preferences, enabling them to react quickly to their clients' short-term personnel needs. By following up with candidates, consultants manage contract extensions and subsequent placements with other clients. I therefore consider placing a candidate in the contract division as a short-term project.

2.2 The survey

After signing the work contract with the study firm, newly hired consultants were invited by their human resource contact person to participate in a survey among job starters, which was administered by a collaboration of researchers from Goethe University Frankfurt and University of Cologne. Upon consent, the contact details of the newly hired consultants were forwarded to a research assistant. Subjects were guaranteed that their data will not be passed on to third parties, and explicitly not to their employer. Most subjects completed the survey before their actual job start. Subjects received a 25-euro voucher for participation and additional incentives from a built-in lottery which served to elicit preferences.

The survey was launched in October 2015 and lasted for 21 months. Most consultants started working at the study firm from January 2016 onward. Consultants' performance is observed until November 2018. If consultants did not leave the firm, their performance is observed for 15 to 37 months, depending on when they entered the firm. The response rate among consultants whose contact details were forwarded to the research assistants was 85 percent. Additionally, some newly hired consultants were not contacted because their data was not forwarded to the research assistants. Overall, performance and retention do not differ systematically between consultants who participated in the survey and those who did not.¹

¹I identify consultants who did not participate in the survey but started working in the same time window and with the same job title as the consultants in my sample. Table A2 of the Appendix shows that survey participation does not explain future performance in the job. Likewise, there are no systematic differences in retention between both groups. The hypothesis of equality between the Kaplan-Meier survivor functions of the two groups cannot be rejected ($p = 0.4669$).

3 The Data

The main sample encompasses a highly comparable group of 168 sales-oriented rookie consultants. They work either in the permanent division only, in the contract division only, or, in seldom cases, switched once between the two divisions. I exclude consultants who are no job starters or not comparable in terms of task assignment and performance measurement. Figure B1 of the Appendix shows in a tree structure how the main sample is obtained, starting from all 214 survey participants. In particular, I drop 41 consultants who are not entirely sales-oriented but rather in charge of mentoring candidates. Their performance is hard to measure and cannot be compared to that of the sales-oriented consultants who interact with client firms.

3.1 Personality data

The survey data include the 12-item Grit Scale (Duckworth et al., 2007) in the German version by Fleckenstein et al. (2014). Moreover, the data contain the German 30-item big five inventory by Körner et al. (2008), measuring openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism. Personality variables are measured on 5-point Likert scales, where answers range from “strongly disagree” to “strongly agree”. I construct trait scores by summing the scores of the corresponding items. Table A1 provides summary statistics of the personality traits, as well as of the survey items measuring perseverance and consistency.

Alongside personality, the survey includes preferences and demographic variables. Incentivized measures of risk friendliness and patience are elicited by determining the switching point in a series of lottery choices (e.g., Becker et al., 2012; Dohmen et al., 2010). In case of patience, consultants choose between a payment today and a stepwise increasing payment in 6 months; in case of risk preference, consultants choose between a lottery and a stepwise increasing certain payment. Moreover, reported patience, risk friendliness, and impulsiveness are measured by items that regularly appear in the German Socio-Economic Panel (SOEP). A measure of confidence is obtained by asking consultants about their estimated future performance rank among 100 newly hired trainees at their employer in their first 6 months.

Table A1 of the Appendix provides summary statistics for all survey variables, including demographic variables. Appendix B.1 explains the procedure of handling missing values, which occur for specific control variables because of inconsistent lottery choices or nonreport.

Table 1: Descriptive statistics of monthly performance data

	permanent division			contract division		
	<i>N</i>	mean	<i>SD</i>	<i>N</i>	mean	<i>SD</i>
deal measure	962	0.66	0.92	1584	0.92	1.29
– number of placements	962	0.54	0.84	1584	0.69	1.05
– number of contract extensions	–	–	–	1584	0.45	0.97
– number of retainer entries	962	0.36	0.83	–	–	–
sales from placements (in euros)	962	7144	11472	–	–	–
commission (in euros)	1074	878	2020	1584	599	971

Notes: The table shows monthly job performance for 67 consultants in the permanent division and 98 consultants in the contract division. The deal measure in bold consists of placements with weight 1, retainer entries with weight 1/3 for the permanent division, and contract extensions with weight 1/2 for the contract division.

3.2 Performance data

The survey data is matched with monthly performance data from the firm’s management information system. Consultants’ performance and job activity is measured by a wide range of KPIs and is regularly reviewed by managers in monthly and weekly evaluations meetings. The performance data is used for the firm’s internal statistics—including the calculation of relative performance ranks and performance thresholds. Additionally, the documentation of effort measures such as the number of meetings serves as a basis for firing poorly performing employees.

Table 1 shows a summary of performance measures. The “deal measure” is my baseline dependent variable, a weighted sum of all KPIs which generate a sales cash flow to the firm. I construct the deal measure using the same weights as the study firm. First and foremost, the deal measure includes placements, which mark the successful completion of a project, with weight 1. For the contract division, the deal measure also includes contract extensions with weight 1/2. For the permanent division, the deal measure also captures the more seldom retainer entries with weight 1/3. Retainer entries generate a cash flow but do not necessarily mark the completion of a project.² While the deal measure allows for an initial aggregated view on job performance, further analyses address the components of the deal measure separately. To analyze mechanisms, I focus on the number of placements as the main outcome.

Additional performance measures are monthly sales and commissions. Sales are observed for the

²Three retainer entries are necessary but not sufficient to constitute a retainer deal. Retainer deals include an upfront fee, a payment for finding a suitable candidate for a job interview, and a payment in case the candidate is hired. For each completed stage, a retainer entry is reported in the data. It is unknown which stage an entry refers to and whether a candidate is actually placed.

permanent division only and depend on the first-year salary of the placed candidate. Because salary is known at the time of contracting, monthly sales are reported along with monthly placements. In the contract division, sales depend on actual project length, which is unobserved at the time of contracting. In both divisions, commissions are a nonlinear function of monthly sales and noisy, thus are only suggestively used as a robustness check.³

In the permanent division, the number of observations in deals and sales is smaller than for the other outcomes because I replace long periods of zero deals and sales caused by technical error with missing values for 12 consultants. Appendix B.2 provides a detailed explanation and shows that my main results do not depend on the correction and are robust to alternative procedures.

3.3 Empirical model

The data set has a panel structure, with performance measured monthly while the main variables of interest are time-constant. Important control variables, on the other hand, vary over time. Not only does the task involve a substantial learning curve. The recruitment market is also affected by macroeconomic trends, seasonality, and shocks in the sectors and locations the client firms operate in. Some consultants also switch sectors (13 percent) and locations (10 percent). In order to estimate coefficients on time-constant regressors, I use a linear random effects model with standard errors clustered on the consultant level. Equation 1 shows the empirical model with a full set of sector, location, and time controls.

$$\begin{aligned}
\text{performance}_{it} = & \alpha_1 \text{perseverance}_i + \alpha_2 \text{consistency}_i \\
& + \beta \text{division}_{it} + \gamma_1 \text{tenure}_{it} + \gamma_2 \text{tenure}_{it}^2 \\
& + (\text{sector}_{it} \times \text{year}_t \times \text{quarter}_t) + (\text{location}_{it} \times \text{year}_t \times \text{quarter}_t) \\
& + \text{year-quarter-of-job-start}_i + e_{it},
\end{aligned} \tag{1}$$

where i denotes the consultant, and t the monthly time period. The main coefficient of interest is α_1 , the average monthly performance difference related with a one-standard-deviation increase

³Commissions are a convex function of monthly sales. If a consultant closes several deals in the same month, commissions are higher than if the same deals were closed in subsequent months. Thus, the consultant can try to game the timing of deal closure in order to exploit the nonlinearity of the compensation scheme. Commissions also contain smaller bonuses for other incentivized behaviors unrelated to the task. Moreover, commissions can lag behind deal closure for several months, depending on the starting date of the placed candidate.

in perseverance, holding constant consistency of interest. The division indicates whether a consultant works in the permanent or contract division. Tenure is measured in months and serves to compare performance between consultants conditional on how many months they have already worked in the firm. Variables in italics are controlled for by a set of dummy variables, including the sector in which the consultant places candidates and the location of the consultant’s office. Interactions with year and quarter capture sector- and location-specific seasonality and shocks. Additionally, I control for the quarter in which the consultant started working in the study firm, capturing anything unique to starting the job in a particular quarter, such as changes in the training, monitoring, or compensation of newly hired consultants.

4 Costly Perseverance in Job Performance

4.1 Perseverance counteracts the benefits of consistency

Table 2 shows that perseverance and consistency have opposed partial relationships with job performance. The positive coefficient on consistency makes intuitive sense because consultants specialize in one particular sector in which they place candidates. By having stronger and more stable interests, they may develop more sector knowledge and better networks. The negative coefficient on perseverance, however, is counterintuitive at first sight. Especially in sales jobs, perseverance and tenacity are often considered necessary for success.

I can rule out that perseverant consultants select into more difficult market environments. For example, perseverant consultants could sort into sectors or locations where success is harder to achieve, or the firm could screen more strongly for perseverance in times and places where market conditions are difficult. Therefore the most parsimonious model in Column 1 is contrasted by my preferred specification in Column 2, where I control for sector, location, and time fixed effects. I subsequently refer to the set of controls in Column 2 as “baseline controls”.

The results are robust to including other survey variables. In Column 3, I add gender, age, the big five personality traits, math grades and economic preferences. Among all other personality traits and control variables, only math grades have a robust and statistically significant relationship with job performance. Coefficients on control variables are reported in Table A4.

Using data on monthly sales and commission, I can rule out that perseverant consultants have fewer but larger deals. With commissions as the dependent variable in Column 4, perseverance

Table 2: Opposing effects of perseverance and consistency on monthly job performance

DV [monthly]:	deal measure			commission	sales
	(1)	(2)	(3)	(4)	(5)
perseverance	-0.118** (0.0479)	-0.115** (0.0493)	-0.115** (0.0562)	-97.32** (49.34)	-1782*** (581)
consistency	0.185*** (0.0413)	0.184*** (0.0493)	0.156*** (0.0503)	179.9*** (59.70)	1909*** (540)
division, tenure, tenure squared	✓	✓	✓	✓	✓
sector, location, time controls		✓	✓	✓	✓
demographics, big five, preferences			✓		
DV sample mean	0.816	0.816	0.816	705.0	7144
R-squared between	0.480	0.592	0.616	0.493	0.774
<i>N</i> (consultant-months)	2610	2610	2610	2722	962
<i>N</i> (consultants)	168	168	168	168	67

Notes: Estimates are from linear random effects regressions; personality variables are standardized. The deal measure consists of placements with weight 1, contract extensions with weight 1/2, and retainer entries with weight 1/3. Demographic variables are gender, age, age squared, math grade and having Abitur; preferences are incentivized risk friendliness and patience. Sector, location, time controls are a set of dummy variables: sector $\times$ year-quarter, location $\times$ year-quarter, and year-quarter of job start. Robust standard errors in parentheses, clustered on the consultant level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

is related with about €100 lower monthly commission on average. In the permanent division, the sales revenue attached to each placement depends on the first-year salary of the placed candidate, which is observed at the time on contracting. Column 5 shows for the permanent division that perseverance relates negatively with sales, more strongly than with the number of placements (see Table A5 for a direct comparison).

The productivity loss associated with costly perseverance is economically large. One standard deviation higher perseverance is associated with a 14-percent loss in both deals and commission relative to sample mean, holding constant consistency of interest. In the permanent division, a placement generates on average about €13,000 in sales. A consultant in the permanent division with one standard deviation higher perseverance makes 0.117 fewer monthly placements on average, which translates to €1,500 lower monthly sales to the study firm.

When using perseverance on its own in the model, without including consistency of interest, point estimates are also negative for important performance measures. Table A6 of the Appendix shows that stand-alone perseverance is negatively related with the number of good projects started, the number of interviews, placements, and sales. Although point estimates are statistically insignificant, many of them are economically meaningful. Stand-alone consistency, on the other hand, is related with more placements, more contract extensions, and higher sales,

where coefficients are statistically significant and economically large. Notably, perseverance on its own is related with more bad projects identified—a relationship that is weaker and statistically insignificant for consistency. Overall, both the partial and the pairwise correlations with job performance underline the conceptual differences in perseverance and consistency. In particular, perseverance seems to be a less fruitful source of motivation and effort provision than consistency of interest. In line with the literature, perseverance and consistency are not highly correlated in my sample, and the conceptual differences are also underlined by distinguished correlational patterns with other psychological measures.⁴

I show that the predictive potential of grit for workplace outcomes is blurred by aggregating conceptually different components into a single trait. Because perseverance and consistency relate with job performance in opposite directions, aggregated grit is at best weakly related with job performance. In subsection 4.2, I show that grit significantly relates with job performance only for well-defined tasks characterized by mere exploitation. In subsection 4.3, I carve out which items drive costly perseverance. The finding that perseverance and consistency partially relate with job performance in opposing directions is not an artifact of model specification. Consistency of interest on its own has a stronger positive relationship with job performance than grit does (see Table A6), implying that some items within perseverance counteract this positive relationship. The driving items introduced in subsection 4.3 resonate with the behavioral differences in job activity and the mechanisms of costly perseverance presented in Section 5.

4.2 Heterogeneity: Performance in exploration versus exploitation tasks

Table 3 shows the relationship of grit and its components with each component of the deal measure separately. Placements, contract extensions, and retainer entries differ in the nature of the task, in particular the level of exploration required.

Pursuing placements is an exploration task because each task is usually novel and ill-defined. Consultants must find vacancies on their own, which includes client acquisition and the search for a suitable candidate. Columns 1 and 2 of Table 3 show that grit is not associated with more placements—especially in the permanent division, where consultants face more long-term and multidimensional matching tasks.

⁴The Spearman’s rank correlation coefficient between perseverance and consistency is 0.518. Figure A1 shows that there is substantial variation in perseverance for a given level of consistency of interest. See Section 7.4, especially the last paragraph, for a more detailed discussion of the conceptual differences between perseverance and consistency.

Table 3: Heterogeneous effects of perseverance in exploration and exploitation tasks

Division:	pooled	permanent		contract	
DV [monthly]:	placements	placements	retainer entries	placements	extensions
	(1)	(2)	(3)	(4)	(5)
Panel A. grit					
grit	0.0474 (0.0291)	0.0267 (0.0415)	-0.0175 (0.0551)	0.0567 (0.0395)	0.0755*** (0.0251)
R-squared between	0.552	0.729	0.584	0.598	0.737
Panel B. grit components					
perseverance	-0.112*** (0.0389)	-0.117** (0.0593)	-0.00177 (0.0579)	-0.125** (0.0621)	-0.0462 (0.0386)
consistency	0.160*** (0.0395)	0.121*** (0.0455)	-0.0168 (0.0632)	0.180*** (0.0633)	0.131*** (0.0352)
R-squared between	0.590	0.757	0.585	0.606	0.743
baseline controls	✓	✓	✓	✓	✓
DV sample mean	0.632	0.537	0.356	0.694	0.454
N (consultant-months)	2610	962	962	1584	1584
N (consultants)	168	67	67	98	98

Notes: Estimates are from linear random effects regressions using standardized personality variables. The baseline controls consist of tenure, tenure squared, and a set of dummy variables: sector $\times$ year-quarter, location $\times$ year-quarter, and year-quarter of job start. Robust standard errors in parentheses, clustered on the consultant level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Pursuing contract extensions, on the other side, is an exploitation task, where all components are well-defined. For each successful placement, the consultant knows the client, the candidate, and the initial duration of the freelancer contract. With this information, the consultant can earn money on average by planning and conducting follow-up phone calls. Given the well-defined nature of the task, grit relates positively with contract extensions (Column 5). However, this is entirely driven by consistency of interest. When using consistency alone instead of grit, the relationship with contract extensions would be even stronger at 0.099 ($p = 0.000$).

Retainer entries (Column 3) are tranches of retainer deals, where 3 tranches are necessary but not sufficient for the completion of a retainer deal. For example, 3 retainer entries could mean that the consultant received up-front fees from 3 different clients without actually following through on these projects. Neither perseverance nor consistency are related with retainer entries. Although the consultant earns at least some money for each retainer entry, the interpretation of retainer entries as a measure of job performance is questionable.

I provide evidence in line with Credé et al. (2017), who argue that grit may be beneficial when tasks are well-defined, but potentially costly when facing novel and ill-defined tasks. In my setting, perseverance is costly when it comes to pursuing new projects, but not necessarily costly

when building on previous projects by following well-defined steps. Comparing consultants in the fast and the slower market environments, perseverance is more strongly negatively related with the number of successfully completed projects in the slower market environment, relative to sample mean. This could reflect that placing a candidate for long-term employment is a one-off, more multidimensional matching task and therefore relatively less well-defined.

Concerning the main results for pooled divisions, there is no nonlinear effect of perseverance and no interaction effect with consistency. There are also no interactions with gender or economic preferences. However, a detailed analysis of moderators is beyond the scope of this paper.

4.3 Drivers of costly perseverance

In order to shed light on the drivers of costly perseverance, I use all 6 items measuring perseverance along with consistency of interest as regressors. The same drivers would be identified in iterative approaches and alternative model specifications outlined at the end of the subsection.

Table 4 shows that in the permanent division, “setbacks don’t discourage me” is the strongest driver of costly perseverance. A setback may occur if a client or a candidate does not want to work with the consultant, or when a client rejects a suggested candidate in a job interview. In both examples, the setback may contain important information regarding the work quality and strategy of the consultant. The setback may also indicate that the client has unrealistic ideas and expectations, in which case the consultant should invest less into the client. My result suggests that in the permanent division, costly perseverance is about how consultants deal with the information signals contained in setbacks.

In the contract division, “I have accomplished a goal that took years of work” and “I finish everything I begin” are the drivers of costly perseverance. The freelancer market is fast and dynamic, with clients requesting candidates on short notice. It therefore requires to be fast and to prioritize flexibly and efficiently. Trying to finish everything, working for very long on one and the same project, can have high opportunity costs. The negative associations suggest that perseverant consultants in the contract division may spend too much time working on one project at the cost of searching for and seizing new opportunities.

The driving items of costly perseverance are related with tenacity, representing a parallelism to previous lab evidence. Alaoui and Fons-Rosen (2021) classify the grit survey questions into two components: tenacity and diligence. The items “I finish everything I begin” and “setbacks

Table 4: Drivers of costly perseverance—by division

Division: DV: deal measure [monthly]	permanent (1)	contract (2)
Perseverance components		
– “I have accomplished a goal that took years of work”	-0.0580 (0.0589)	-0.244*** (0.0592)
– “I overcome setbacks in order to conquer important challenges”	0.0604 (0.0559)	0.0704 (0.0668)
– “I finish everything I begin”	0.0228 (0.0628)	-0.149** (0.0667)
– “Setbacks don’t discourage me”	-0.143** (0.0567)	-0.0422 (0.0629)
– “I am a hard worker”	0.0159 (0.0772)	0.0555 (0.0514)
– “I am diligent”	-0.0929 (0.0955)	0.0460 (0.0667)
consistency	0.0543 (0.0506)	0.321*** (0.0825)
baseline controls	✓	✓
R-squared between	0.799	0.747
N (consultant-months)	962	1584
N (consultants)	67	98

Notes: Estimates are from linear random effects regressions; the dependent variable is the monthly deal measure, which consists of placements with weight 1, contract extensions with weight 1/2, and retainer entries with weight 1/3. The baseline controls consist of tenure, tenure squared, and a set of dummy variables: Sector, location, time controls are a set of dummy variables: sector $\times$ year-quarter, location $\times$ year-quarter, and year-quarter of job start. Robust standard errors in parentheses, clustered on the consultant level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

don’t discourage me” are the most unambiguously assigned to tenacity, and predict overplaying in roulette with respect to the ex-ante plan of action. I show that the same two items also correlate with inefficient behaviors in the workplace.

The same drivers of costly perseverance would be identified under alternative model specifications. In an iterative approach using each perseverance item separately along with consistency of interest, the same three driving items would be observed with similar salience. When using the perseverance items separately without holding constant consistency of interest, the three driving items also have the strongest point estimates, which are again negative but of smaller albeit economically meaningful magnitude⁵.

⁵In the permanent division, the coefficient on “setbacks don’t discourage me” is negative (-0.104 , $p = 0.031$).

5 Mechanisms

5.1 Measures of job activity

Looking into different measures of job activity, I analyze whether perseverant consultants also differ in the way how they manage projects. The placement process starts with consultants searching for vacancies. Once a vacancy is found, an ex-ante evaluation is conducted to assess whether the job description is worthwhile to pursue as a project of candidate search. With the support of the team leader, the projects are classified into good or bad, where only good projects are considered worthwhile to pursue, thus constituting a “project started”. Bad projects are reported as effort measures in the data but are generally not pursued. Consultants pursue projects by trying to find suitable candidates who interview with the client firm. In the process of finding suitable candidates, consultants schedule meetings with both clients and candidates, and send electronic candidate profiles to clients (“candidate suggestions”). Whenever a consultant sends a candidate to a job interview with the client, an “interview” is reported in the data.

5.2 Perseverance and job activity

Table 5, Column 1 shows that perseverant consultants identify fewer good projects per month. Relative to sample mean, point estimates correspond to about 12 percent fewer projects started in the permanent division and 16 percent fewer projects started in the contract division. The subsequent columns show other measures of job activity, holding constant the number of projects started in the current and previous 3 months. Column 5 shows that perseverant consultants find fewer suitable candidates who interview with the client firm, amounting to roughly 10 percent fewer monthly interviews relative to sample mean in both divisions. Interviews may be considered a performance outcome, whereas the number of projects started, meetings, and candidate suggestions characterize how consultants organize the search process. While perseverant consultants in the contract division only differ by juggling fewer projects, perseverant consultants in the permanent division also differ in the way how they pursue each given project.

The pattern observed in the middle columns of Table 5 suggests that perseverant consultants in the permanent division allocate effort inefficiently between stakeholders. Perseverant consultants have 0.68 fewer client meetings per month on average, holding constant the number

The coefficients on the other perseverance items are mostly negative and all statistically insignificant. In the contract division, the driving items on their own, without consistency, have negative point estimates: having achieved a goal that took years of work (-0.059 , $p = 0.124$), and finishing everything begun (-0.037 , $p = 0.399$).

Table 5: Differences in job activity related with perseverance

DV [monthly]:	projects started (1)	client meetings (2)	candidate meetings (3)	candidate suggestions (4)	interviews (5)
Panel A. Permanent division					
perseverance	-0.399** (0.181)	-0.683** (0.320)	-0.122 (0.370)	-60.22** (24.65)	-0.728* (0.411)
consistency	0.300 (0.190)	0.450 (0.293)	0.238 (0.313)	45.38** (18.25)	0.311 (0.346)
DV sample mean	3.219	4.986	3.822	147.1	7.679
R-squared between	0.721	0.734	0.816	0.667	0.866
N (consultant-months)	1074	873	873	873	873
N (consultants)	67	60	60	60	60
Panel B. Contract division					
perseverance	-0.236* (0.130)	0.108 (0.414)	0.0809 (0.316)	-14.18 (99.91)	-0.307* (0.163)
consistency	0.380*** (0.115)	0.621 (0.400)	0.338 (0.358)	93.60 (109.4)	0.328 (0.204)
DV sample mean	1.471	5.647	2.242	475.5	2.960
R-squared between	0.613	0.377	0.352	0.734	0.715
N (consultant-months)	1584	1294	1294	1294	1294
N (consultants)	98	90	90	90	90
Intermediate outcomes (current, previous 3 months)					
# projects started		✓	✓	✓	✓
baseline controls	✓	✓	✓	✓	✓

Notes: Estimates are from linear random effects regressions. Projects started are “good” projects only—meaning they are worthwhile to pursue according to an ex-ante classification. The baseline controls consist of tenure, tenure squared, and a set of dummy variables: sector, location, time controls are a set of dummy variables: sector $\times$ year-quarter, location $\times$ year-quarter, and year-quarter of job start. Robust standard errors in parentheses, clustered on the consultant level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

of projects started. Moreover, perseverant consultants send fewer candidate suggestions to clients—approximately 3 fewer profiles per workday on average, conditional on the number of recently started projects. By contrast, the point estimate on candidate meetings is insignificant and economically small. Thus, there is an asymmetry in stakeholder communication whereby perseverant consultants concentrate effort on candidates rather than clients.

Overall, perseverant consultants in the permanent division communicate less with clients in the process of finding a suitable candidate. Having fewer meetings with clients per project, they are less likely to understand their needs. Because they send fewer candidate suggestions, they may also receive less feedback from clients. Consequently, they may not only incorporate negative signals too little (“setbacks don’t discourage me”), but also collect fewer signals that could improve their search. In light of research in psychology and related disciplines, the pattern of reaching out less frequently to clients could stem from a maladaptive form of effort provision. For example, perseverance has been shown to related with compulsive overwork (Czerwiński et al., 2022) and perfectionism (Houston et al., 2021). Thereby consultants may search longer for a “perfect” match before suggesting a candidate or scheduling another client meeting. As a result, perseverant consultants may exert high levels of effort, but in a way that is less aligned with their clients’ needs.

5.3 Channels of costly perseverance

So far I have shown that perseverant consultants start fewer projects and—in case of the permanent division—pursue them in a less proactive way vis-à-vis their most important stakeholder, which is the client. Next, I test to which extent these behavioral differences explain costly perseverance. Table 6 shows how the relationship between perseverance and placements changes when holding constant job activity in the current and past 3 months. Columns 1 and 6 start with the baseline specifications for the permanent division and for the contract division. In order to make the subsequent regressions comparable, the first 3 months are dropped for all consultants. In the next columns, the number of good projects started in the current and previous 3 months is held constant. In the contract division, perseverant consultants differ only by starting fewer worthwhile projects. In the permanent division, they also differ by communicating less with clients. Therefore, client meetings and candidate suggestions are additionally held constant for the permanent division. By holding these measures of job activity constant, I cut the channels through which perseverance could undermine performance.

Table 6: Channels of costly perseverance

Division:	permanent					contract		
DV: placements [monthly]	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
perseverance	-0.166* (0.0878)	-0.158* (0.0840)	-0.137 (0.0844)	-0.107 (0.0840)	-0.0438 (0.0666)	-0.168** (0.0721)	-0.0925 (0.0586)	-0.0335 (0.0549)
consistency	0.146** (0.0574)	0.143** (0.0569)	0.127** (0.0551)	0.110* (0.0559)	0.0866* (0.0498)	0.261*** (0.0839)	0.139* (0.0730)	0.0730 (0.0735)
baseline controls	✓	✓	✓	✓	✓	✓	✓	✓
Intermediate outcomes (current, previous 3 months)								
# projects started		✓	✓	✓	✓		✓	✓
# client meetings			✓	✓	✓			
# candidate suggestions sent				✓	✓			
# interviews					✓			✓
R-squared between	0.738	0.746	0.770	0.779	0.869	0.526	0.671	0.765
N (consultant-months)	767	767	767	767	767	1294	1294	1294
N (consultants)	60	60	60	60	60	90	90	90

Notes: The dependent variable is the number of monthly regular placements. The baseline controls consist of tenure, tenure squared, and a set of dummy variables: sector, location, time controls are a set of dummy variables: sector $\times$ year-quarter, location $\times$ year-quarter, and year-quarter of job start. Robust standard errors in parentheses, clustered on the consultant level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

The mechanism analysis in Table 6 illustrates that for the contract division, the number of projects started largely explains costly perseverance. After accounting for the number of projects started, the point estimate reduces to about half its size and becomes statistically insignificant. In the permanent division, however, the point estimate reduces only slightly when holding constant the number of projects started. It reduces more strongly and becomes statistically insignificant after including the number of client meetings and candidate suggestions. While in the fast market, the number of projects started acts as the main channel of costly perseverance, in the slower market, costly perseverance is to an important extent explained by *how* consultants pursue their projects. In particular, the importance of client meetings and candidate suggestions both point to how consultants communicate with their clients, who are their most important stakeholders.

In a job where projects are endogenously selected and pursued, there is a trade-off between investing more resources into old projects versus searching for new ones. In my setting, perseverant consultants start fewer projects in both divisions. Starting fewer projects likely has implications for project quality. Increasing the project portfolio would create tangible outside options and facilitate replacing unfruitful projects by more promising ones. Thus, clinging to old projects might lead to pursuing projects with a lower success probability. Accordingly, the remaining negative effect sizes nearly disappear when additionally holding constant the number of suitable candidates whom the consultant identified to interview with the client (Table 6, Columns 5 and 8).

5.4 Overall picture of mechanism and drivers

Perseverance is related with how consultants organize their work. Considering the monthly number of good projects started, that is, projects which are worthwhile to pursue according to an ex-ante classification, perseverant consultants start fewer projects in both market environments. In the slower market, where more long-term task assignment offers more wiggle room for goal pursuit to be strategically shaped, perseverant consultants communicate less with their most important stakeholders. Overall, these behavioral differences in job activity explain a substantial part of the negative relationship of perseverance and job performance.

The heterogeneous behavioral mechanisms resonate with the item-level drivers of costly perseverance in the two different market environments. The contract division, where freelancers are

placed, is a fast and highly dynamic market environment characterized by short-term client requests. As suggested by the driving items, perseverant consultants work on old projects for too long, trying to finish everything, which comes at the cost of searching for new, more worthwhile projects. Accordingly, perseverant consultants start fewer projects. Given the emphasis on speed and quantity in this market environment, perseverance undermines performance largely through the channel of starting fewer projects. Having a smaller project portfolio, perseverant consultants have fewer options to replace unfruitful projects by more promising ones. Clinging to old projects for too long, they pursue projects with a lower success probability, as shown by the lower number of suitable candidates found for a given project.

In the permanent division, there is also a risk of starting too few projects. But rather than efficient task juggling, the frequency of client communication seems to play the key role. Consultants in the permanent division place candidates for long-term employment in a slower and more strategic recruitment process. Here matching task are more multidimensional, leading to a high-stakes decision to be made by both the client and the candidate. Making successful matches requires consultants to understand the client's as well as the candidate's actual needs and intentions. The driving item of costly perseverance indicates that the failure to update strategies in response to negative signals is particularly detrimental. By communicating less with the client during a given project, consultants collect fewer signals, thus search on the basis of less information. While meeting the same number of candidates per project, consultants find fewer *suitable* candidates, as measured by the number of candidates interviewing with the client or being successfully placed. Thus, perseverance undermines performance mostly through pursuing projects in a more isolated and uninformed way.

6 Perseverance and Retention

In this section I show that perseverance and consistency are, on average, unrelated to retention. Also, perseverance and consistency do not shape the retention of high or low performers specifically. In particular, low performers are not more likely to stay in the firm when more perseverant. Further robustness checks with respect to attrition are discussed in Section 7.1.

Assuming all consultants have an outside option that consists of a fixed pay that is higher than the incentive pay under low performance, it would be rational for poorly performing consultants to leave the firm. This is reinforced by a highly transparent and competitive work environment.

Perseverance, however, may lead poorly performing consultants to nevertheless stay in the firm, encountering monetary losses. This would be consistent with Lucas et al. (2015), who show that grittier subjects remain longer in preprogrammed losing conditions despite incentives for opting out. If among poorly performing consultants only highly perseverant ones remain in the firm, attrition bias could explain the negative performance relationship observed.

In order to test whether perseverant consultants are more likely to stay despite low performance, I use two measures of low performance. First, I interact perseverance with dummy variables for belonging to the top or bottom 30 percent. The dummy variables are constructed on the basis of a time-varying performance rank. For every month of tenure, I rank consultants who are still in the firm by their cumulative job performance. The rank is primarily defined by the deal measure.⁶ As an additional measure of being a low-performer, I use a dummy variable for having achieved no deals until a given month of tenure. This specification is restricted to the first year on the job. Surviving beyond the the first year with zero deals would be implausible even under managerial discretion in firing during the trial period.

Table 7 shows that perseverant low performers are not more likely to stay. The interactions of perseverance with the performance categories are all insignificant. Moreover, perseverance and consistency are unrelated with survival in the firm on average—with and without controlling for macroeconomic seasonality, sectors, locations, and the quarter of the job start. Rather, retention is strongly driven by performance and risk preference. Consultants who leave the firm are primarily those who perform poorly or are risk averse. In both cases, selection works in line with theoretical implications and empirical evidence (Holmström, 1979; Lazear, 2000; Dohmen and Falk, 2011). Workers who cannot benefit from steep incentives select out of performance pay; others leave because they have a preference for stable income flows.

In an incentivized lab experiment, Lucas et al. (2015) show that gritty subjects spend more time on unsolvable tasks and preprogrammed losing conditions despite incentives for opting out. In this case, results are not paralleled in my field setting. Also when using grit and its interaction

⁶Ties in the deal measure are broken by the number of interviews, the number of worthwhile projects, candidate suggestions sent by email, and lastly meetings. The order of the KPIs for the performance ranking is guided by the results of a survey among two sales team managers. Both managers found that deals and sales revenue was the most important, followed by the number of interviews, the number of worthwhile projects, the number of suggested candidates, and lastly the number of meetings. Because the deal measure is much higher on average in the contract division, I rank consultants separately within the permanent and contract divisions, dropping 3 consultants who switched between divisions. I use the dummies and not the original ranking for several reasons: Three performance categories are the most simple way to model nonlinearity. They also take out much of the noise in the underlying ranking, which is affected by short-term variation from vacations and the timing of deals.

Table 7: The relationship of perseverance and firm exit

DV: hazard of leaving the firm	full data			first year
	(1)	(2)	(3)	(4)
perseverance	-0.0668 (0.172)	-0.300 (0.195)	-0.0883 (0.339)	-0.296 (0.385)
consistency	-0.187 (0.183)	-0.000969 (0.223)	-0.0921 (0.379)	-0.139 (0.568)
incentivized risk friendliness		-0.361*** (0.109)	-0.374*** (0.115)	-0.330** (0.164)
incentivized patience		0.0268 (0.131)	0.0224 (0.129)	-0.0769 (0.163)
Performance rank at given tenure				
low rank		1.813*** (0.302)	1.802*** (0.302)	
low rank $\times$ perseverance			-0.283 (0.373)	
low rank $\times$ consistency			0.0771 (0.369)	
high rank		-1.313*** (0.432)	-1.397*** (0.419)	
high rank $\times$ perseverance			-0.260 (0.516)	
high rank $\times$ consistency			0.596 (0.479)	
Zero deals up to given tenure				
zero deals				2.589*** (0.471)
zero deals $\times$ perseverance				-0.210 (0.485)
zero deals $\times$ consistency				0.585 (0.572)
Permanent division dummy	yes	yes	yes	yes
Sector, location, time dummies	yes	yes	yes	yes
Demographic controls (gender, age)	no	yes	yes	yes
pseudo-R-squared	0.0766	0.198	0.200	0.216
N (consultant-months)	2722	2510	2510	1657
N (consultants, total)	168	163	163	166
N (consultants who left)	94	91	91	53

Notes: Estimates are coefficients from Cox regressions; the dependent variable is the hazard of leaving the firm at a given point in time. High-rank and low-rank are dummy variables for being in the highest or lowest 30% of the performance ranking. Sector, location, and year-quarter of job start are a set of dummy variables (without interactions). The number of observations drops because the performance rank is not defined for 3 consultants who switched divisions; 2 consultants have missing performance data because of measurement error during the first year. Robust standard errors in parentheses, clustered on the consultant level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

with performance, there is no evidence that grit makes low performers more likely to stay in the firm. When using the grit measure instead of the two components, gritty consultants tend to be less likely to leave (-0.169 , $p = 0.081$). However, low performing consultants are not more likely to leave when more gritty. Again, point estimates on the interaction terms of performance and grit are statistically insignificant.

The lack of parallelism with respect to duration could be explained because tenure is not fully under the control of the consultant. Performance monitoring and firing rules may leave little wiggle room for poorly performing consultants to stay.

7 Discussion

7.1 Robustness

Attrition The negative relationship of perseverance and job performance could be driven by attrition bias if perseverant low performers stay longer in the firm or perseverant high performers select out of the sample. In Section 6, I show that perseverance and consistency do not make top or low performers more likely to leave or stay in the firm. Additionally, Table A3 shows that my results also hold in a balanced panel, looking at first-year performance of consultants who stay in the firm for at least one year.

Cognitive ability With a focus on math grades, I show that lower cognitive ability does not explain costly perseverance.⁷ Though math grades have a strong positive relationship with job performance, they are uncorrelated with perseverance—both pairwise and after controlling for conscientiousness and other covariates. However, not all consultants report their math grades. Math grades are likely not missing at random. Consultants who do not report their math grade are slightly more perseverant. This raises the concern that a latent negative correlation between perseverance and cognitive ability could exist and drive costly perseverance. Therefore I set missing math grades to 1.5 standard deviations below average. This corresponds to the grade E, or 5+ on the German grading scale.

When controlling for math grades, the point estimate on perseverance decreases only slightly

⁷The survey does not elicit intelligence, but math grades and final graduation grades are included as proxies for intelligence and ability. In general, grades relate more strongly with personality than with intelligence (Borghans et al., 2016)—likely grades also pick up other unobserved factors. However, math grades relate more strongly with intelligence than general grades do (Borghans et al., 2016). Consistent with this, graduation grades are not predictive of performance in my setting, neither on their own nor alongside math grades.

in absolute terms. Table A4 shows results with and without setting missing math grades to a bad grade. Column 2 is the same specification as Column 1 but with all consultants dropped who did not report their math grade. This allows to separate the effect of the reduction in sample size from the effect of controlling for math grades in the next step. When controlling for math grades in Column 3, the point estimate reduces only slightly compared to Column 2. In Column 4, I replace missing math grades with a bad grade. Compared to Column 1, the point estimates reduces by 13 percent but remains statistically and economically significant. Thus, even under strong assumptions, costly perseverance would only to a small extent be explained by lower cognitive ability.

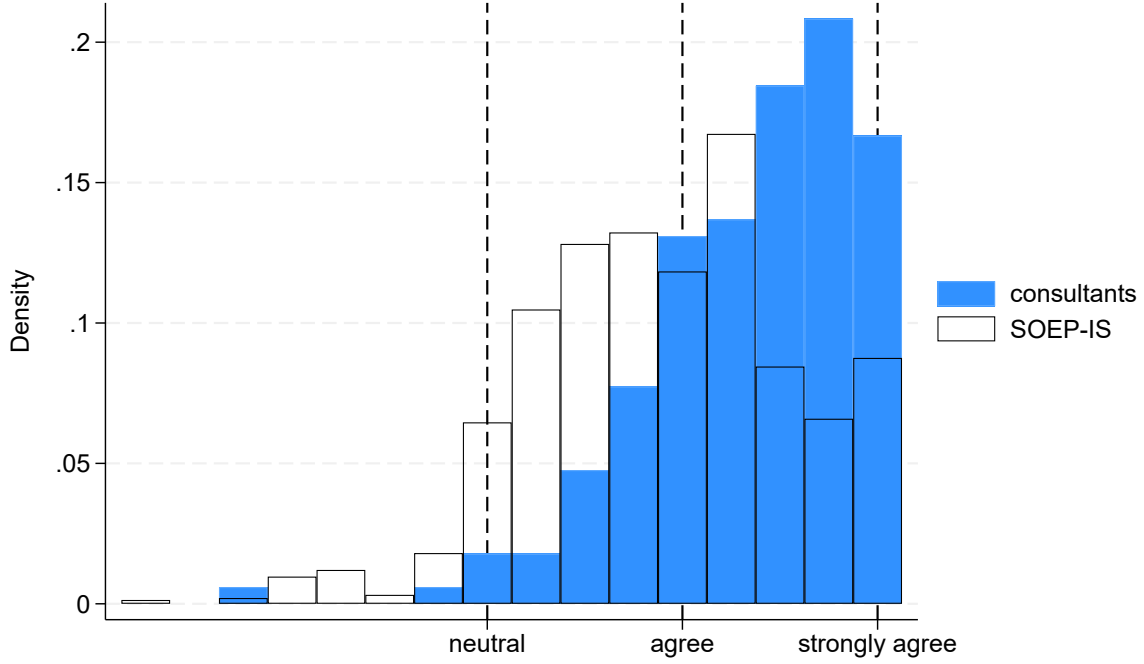
Other personality variables The negative coefficient of perseverance could be the result of omitted variables that have opposing partial correlations with perseverance and job performance, causing a negative bias. But perseverance is positively correlated with other socially desirable personality traits, especially with consistency, conscientiousness, and extraversion. Adding the big five personality traits to the regression lets the negative coefficient on perseverance grow stronger. The reported measure of impulsiveness and the estimated future performance percentile let the coefficient almost unchanged. In the kitchen sink specification of Table A4, Column 7, the point estimate on perseverance is similar to the parsimonious specification in Column 1.

7.2 Interpretation of results

My results cannot be interpreted as causal. However, reverse causality can be excluded by design, which is an advantage compared to many settings in applied psychology. Personality is measured for a sample of job starts with no or very little labor market experience. Consultants were contacted to participate in the survey after signing their work contract with the study firm and most of them participated in the survey before job start. Additionally, I can control for a rich set of covariates such as math grades, economic preferences, and consultants' ex-ante level of confidence. Nevertheless, selection on unobserved variables remains a threat to causal interpretation. The firm screens for ambition and perseverance, as well as goal-orientation and other traits and skills. Consultants who were hired despite lower perseverance may have unobserved skills that increase job performance.

The consultants in my sample are job starters who selected into a competitive consulting job

Figure 1: Perseverance of consultants compared to representative sample



Notes: This figure shows the distributions of perseverance scores, comparing 168 consultants to a representative sample of 334 similar-age subjects from the SOEP-IS. I use person-level weights to achieve representativeness.

with steep monetary incentives. Figure 1 shows that consultants are more perseverant than a representative similar-age group. In a regression that controls for gender and age, consultants have a perseverance score that is 0.68 standard deviations higher than that of a similar-age representative sample. When interpreting my results, it must be kept in mind that the negative effect of perseverance occurs among a sample of consultants who, on average, mainly agreed or strongly agreed to the statements measuring perseverance.

I construct the comparison group using the Innovation Sample of the German Socio-Economic Panel (SOEP-IS) (Richter and Schupp, 2015). I restrict age in the SOEP-IS to be between 23 and 30, and make the sample representative of the German population by using person-level weights. The SOEP-IS contains the Grit-S scale (Duckworth and Quinn, 2009) for two repeated cross sections in 2015 and 2017. This closely corresponds to the time frame in which consultants participated in the survey. To enable a direct comparison, I adjust my measure of perseverance to only include the items of the shorter Grit-S scale.⁸

⁸The Grit-S scale used in the SOEP-IS only contains 4 out of the original 6 items measuring perseverance. The main conclusions are the same when using all 6 perseverance items for consultants and scaling the sum scores to make them comparable to the SOEP-IS sum scores.

7.3 External validity

The nature of the task is essential to the effect of perseverance. Most studies showing a positive effect of perseverance use educational settings. However, the same personality variables that predict success in school need not predict success in the workplace, where resources are more limited and problems less well-defined. In most educational settings, success can be achieved by focusing on understanding and practicing certain types of exercises, which is a well-defined task. In the workplace, and in particular for knowledge workers, tasks are less well-defined and require autonomous goal pursuit.

My setting might be particular in the sense that the trade-off between pursuing old projects and starting new ones is particularly salient. Consultants do not have control over the behavior of clients and candidates, which implies they need to recognize and abandon unfruitful projects quickly. The effect of perseverance might be more positive in settings where the product or client space are exogenously defined. Dugan et al. (2019) find a positive effect of perseverance on sales in the context of warehouse equipment. In my setting, however, consultants are faced with a situation in which neither the client nor the “product” is ex-ante known. A similar situation is faced by researchers, where Khan et al. (2020) show that too high levels of grit relate with lower reported goal progress.

7.4 Methodology

On the one hand, researchers have used perseverance and consistency together in regression models before (e.g., König-Kersting and Trautmann, 2025; Czerwiński et al., 2022). Others argue that grit should not be decomposed into its components (Jachimowicz et al., 2018). For instance, the survey questions measuring perseverance are all positively worded, while the consistency items are all negatively worded. As a result, the two-factor structure of grit could be an artifact of measurement issues. According to Vazsonyi et al. (2019), the positively worded questions could explain why the perseverance component shows higher predictive validity, while the validity of the consistency component is weakened by measurement error. In my setting, however, consistency of interest is a strong predictor of job performance, suggesting that the negative wording need not undermine its predictive potential.

Moreover, Jachimowicz et al. (2018) argue that none of the survey questions contained in the shorter Grit-S scale capture whether subjects attach genuine interest or value to the goals they

pursue. Therefore the measure for consistency of interest fails to capture its intended meaning. As such, Jachimowicz et al. (2018) propose that the shorter grit scale only measures perseverance and should be interacted with another construct measuring passion. In my setting, however, the original 12-item Grit Scale is applied, where consistency of interest additionally includes the items “my interests change from year to year” and “I become interested in new pursuits every few months”. These items measure consistency of interest quite literally and contribute strongly but not exclusively to the positive relationship of consistency and job performance.

The heterogeneous effects of perseverance and consistency are also evident when they are used as stand-alone predictors. Perseverance on its own—with no other personality variables in the model—would not predict better job performance. Table A6 of the Appendix shows that among all KPIs, stand-alone perseverance would only relate with, at best, 0.5 more meetings and 1.0 more bad project per month. Bad projects are projects that are ex-ante classified as not worthwhile to pursue. During the first 15 months on the job, stand-alone perseverance would only relate with finding 1.4 more bad projects per month. Consistency, on the other hand, is related with more placements, more contract extensions, and higher sales.

Literature shows that perseverance and consistency are only moderately to strongly, but not highly correlated (Guo et al., 2019; Credé et al., 2017; König-Kersting and Trautmann, 2025). Also in my sample, perseverance and consistency are not highly correlated. Figure A1 shows that there is substantial variation in perseverance for a given level of consistency of interest. Spearman’s rank correlation coefficient between perseverance and consistency is 0.518 ($p = 0.000$). In a linear regression, 33 percent of variation in perseverance is explained by consistency. Moreover, perseverance and consistency are conceptually more distinguished the original grit scale, which I use, compared to the short grit scale (Credé et al., 2017). The conceptual differences are reinforced by distinguished correlations with other psychological measures, including intrinsic motivation and the big five (Guo et al., 2019), which also holds in my setting.⁹

⁹In my setting, for example, perseverance is more strongly positively related with extraversion than consistency of interest, while consistency of interest is more strongly negatively related with neuroticism than perseverance. I determine this in regressions of perseverance and consistency respectively on the big five personality traits, comparing point estimates to confidence intervals (results not shown).

8 Conclusion

This paper sheds light on an important source of inefficiency that is often ignored. While high effort is commonly encouraged and praised, too little attention is brought to the risks involved in its overprovision and misallocation. The idea not to be discouraged by setbacks and to finish everything begun are widespread social norms. However, persevering in a given task is not always worth its cost. As people invest resources inefficiently, opportunity and welfare costs arise that are borne both by the individual and by society as a whole.

I show that perseverance relates negatively with job performance. In the slower market, where longer-term goals are pursued, costly perseverance is driven by a lower responsiveness to negative signals. In consequence, perseverant consultants start fewer projects and pursue them in a more narrow way, communicating less with their most important stakeholders. Rather than exerting lower levels of effort in general, perseverant consultants allocate effort inefficiently between stakeholders. In the fast market, where short-term goal are pursued, costly perseverance is driven by working for too long on a project, trying to finish all projects, leading perseverant consultants to start fewer projects. However, perseverance is less costly in well-defined tasks which build on previously completed projects and do not require exploration.

Policy implications speak to both management practice and the education system. Within organizations, costly perseverance could be counteracted by targeted mentoring, a firm culture that discourages perfectionism while encouraging communication and feedback, and by establishing management practices to establish structured knowledge flows (Sandvik et al., 2020). Concerning hiring, my results suggest that very high levels of perseverance may not be desirable. Instead, firms should look for workers with a genuine interest in the task and good judgment, meaning that they incorporate negative signals and opportunity costs into their effort allocation. With regard to the education system, my results demonstrate that costly perseverance is a relevant problem among highly motivated job starters. In the workplace, time and effort are limited resources and the ability to allocate them efficiently is key. To prepare students for the shift in skill requirements at the transition from a learning to a work environment, universities should include productivity and project management training into their curricula. When thinking about interventions on grit, it should be avoided to further unfruitful tenacity—for example by encouraging exploration as well as creative and analytical problem-solving.

My setting has many advantages, especially that a rich set of performance variables is objectively and quantitatively measured. My sample consists of knowledge workers whose task is to generate sales from building their own project portfolio, acquiring information and building relationships. The data come from a typical personnel services firm which can be seen as representative for personnel consulting (excluding executive search). Moreover, the results speak to a wide range of other jobs in which workers manage projects autonomously. One example is academia, where researchers face the trade-off between pursuing old projects and start looking for new ones (McCardle et al., 2018). A limitation of my setting is that I do not observe job activity on the level of specific projects, but only aggregated on a monthly level. The ideal data set would also contain the allocation of time, meetings, and search activity within and across projects.

I contribute evidence of costly perseverance in the field for a selected sample of highly-motivated consultants. However, my results are in line with several lab experiments that have demonstrated the overinvestment of resources linked with personality measures like persistence, grit, or perseverance in more representative samples. Future research could address to which extent information or training can alleviate costly perseverance in the field, increasing worker productivity and performance. Further research may also target the grit measure itself at the intersection of psychology and economics, investigating the relationship of perseverance with self-regulation, loss aversion, and responsiveness to feedback.

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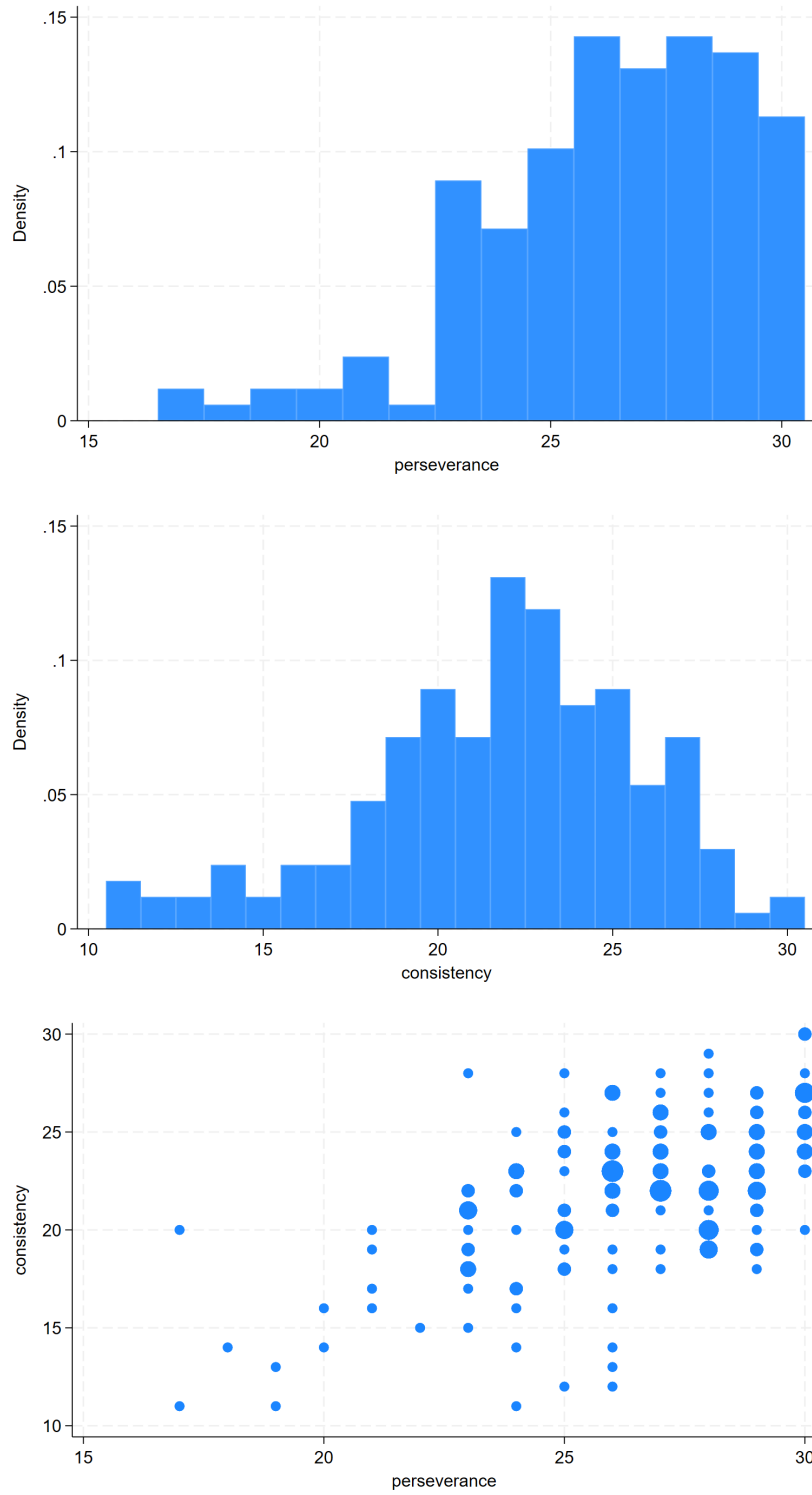
A Additional tables and figures

Table A1: Descriptive statistics of survey data

	<i>N</i>	mean	<i>SD</i>	min	max	possible range	
<i>Demographic variables</i>							
female dummy	168	46%	0.50	0	1		
age at survey participation	168	26.45	2.89	19	37		
current/recent university graduate	165	67%	0.47	0	1		
high school dummy (Abitur)	168	86%	0.35	0	1		
high school graduation grade	144	2.59	0.54	1.0	3.8	1.0	4.0
math grade	159	3.03	1.10	0.67	5.33	0.67	6
<i>Personality variables</i>							
perseverance	168	26.32	2.82	17	30	6	30
– “I have accomplished a goal that took years of work”	168	4.20	1.03	1	5	1	5
– “I overcome setbacks in order to conquer important challenges”	168	4.70	0.50	3	5	1	5
– “I finish everything I begin”	168	4.24	0.87	1	5	1	5
– “Setbacks don’t discourage me”	168	4.41	0.78	1	5	1	5
– “I am a hard worker”	168	4.39	0.67	2	5	1	5
– “I am diligent”	168	4.38	0.75	1	5	1	5
consistency	168	21.83	3.97	11	30	6	30
– “I often set a goal but later choose to pursue a different one” (recoded)	168	3.82	0.91	1	5	1	5
– “New ideas and new projects sometimes distract me from previous ones” (recoded)	168	3.52	0.92	1	5	1	5
– “I become interested in new pursuits every few months” (recoded)	168	3.42	1.06	1	5	1	5
– “My interests change from year to year” (recoded)	168	3.71	0.94	1	5	1	5
– “I have been obsessed with a certain idea or project for a short time but later lost interest” (recoded)	168	3.26	1.23	1	5	1	5
– “I have difficulty maintaining my focus on projects that take more than a few months to complete” (recoded)	168	4.10	0.94	1	5	1	5
grit	168	48.14	6.05	28	60	12	60
openness	168	20.79	4.00	11	30	6	30
conscientiousness	168	26.54	2.54	13	30	6	30
extraversion	168	23.52	3.24	12	30	6	30
agreeableness	168	23.57	3.70	13	30	6	30
neuroticism	168	11.26	3.27	6	21	6	30
<i>Preferences and other measures</i>							
incentivized risk friendliness	151	6.21	2.07	0	10	0	10
— with missing values imputed	168	6.20	1.97	0	10		
incentivized patience	167	5.59	2.88	0	10	0	10
– with missing value imputed	168	5.60	2.87	0	10		
reported risk friendliness	168	6.24	1.90	1	10	1	10
reported patience	168	5.98	2.43	1	10	1	10
reported impulsiveness	168	4.40	2.36	0	10	0	10
reported confidence	168	83.52	16.42	0	100	0	100

Notes: “High school” is short for having university entrance qualification (German Abitur). The best grade is 1 (corresponding to A; 0.67 means A+), and the worst grade is 6 (corresponding to F). Sample size is reduced because of missing values in some of the demographic variables and because of inconsistent lottery choices in the incentivized measures. Missing values in incentivized risk preference and patience are imputed by a random forest algorithm (Stekhoven and Buhlmann, 2012)

Figure A1: Distributions of perseverance and consistency sum scores



Notes: This figure shows the distributions of perseverance and consistency sum scores for $N = 168$ consultants of the study firm. The possible range of each sum score is $[6, 30]$. On the scatter plot, the size of the dots reflects the number of consultants who have the same combination of sum scores.

Table A2: Testing for selection into survey participation on later job performance

DV: deal measure [monthly]	(1)	(2)	(3)	(4)	(5)	(6)
survey participant	0.0189 (0.0709)	0.0585 (0.0635)	0.0472 (0.0633)	0.00218 (0.0741)	-0.00901 (0.0798)	-0.00740 (0.0796)
permanent division dummy	✓	✓	✓	✓	✓	✓
tenure, tenure squared		✓	✓	✓	✓	✓
sector, location dummies			✓	✓	✓	✓
year-quarter of job start				✓	✓	✓
sector $\times$ year-quarter					✓	✓
location $\times$ year-quarter					✓	✓
demographics (gender)						✓
R-squared overall	0.00907	0.139	0.185	0.189	0.242	0.242
N (consultant-months)	4691	4691	4691	4691	4691	4691
N (consultants)	295	295	295	295	295	295

Notes: The dependent variable is the monthly deal measure. The sample includes all sales-oriented consultants who started in the study firm on the lowest hierarchical level during the same time period as most survey participants (between January 2016 and August 2017). Out of the 295 consultants, 159 participated in the survey and 136 did not. Estimates are from linear random effects regressions; robust standard errors in parentheses, clustered on the consultant level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A3: Main results using a balanced panel of consultants

DV [monthly]:	deal measure			commission
	(1)	(2)	(3)	(4)
perseverance	-0.0859* (0.0491)	-0.127*** (0.0473)	-0.149*** (0.0548)	-95.39* (48.75)
consistency	0.143*** (0.0432)	0.148*** (0.0519)	0.161** (0.0643)	85.51* (49.14)
division, tenure, tenure squared	✓	✓	✓	✓
sector, location, time controls		✓	✓	✓
demographics, big five, preferences			✓	
DV sample mean	0.602	0.602	0.602	345.0
R-squared between	0.0725	0.545	0.600	0.312
N (consultant-months)	1400	1400	1400	1432
N (consultants)	119	119	119	120

Notes: Estimates are from linear random effects regressions; personality variables are standardized. The deal measure consists of placements with weight 1, contract extensions with weight 1/2, and retainer entries with weight 1/3. Included is data on first-year job performance for consultants who stay in the firm at least for 12 months. Demographic variables are gender, age, age squared, math grade and having Abitur; preferences are incentivized risk friendliness and patience. Sector, location, time controls are a set of dummy variables: sector $\times$ year-quarter, location $\times$ year-quarter, and year-quarter of job start. Robust standard errors in parentheses, clustered on the consultant level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A4: Robustness with respect to controls

DV: deal measure [monthly]	(1)	(2)	(3)	(4)	(5)	(6)	(7)
perseverance	-0.119** (0.0486)	-0.0959* (0.0500)	-0.0905* (0.0496)	-0.104** (0.0486)	-0.112** (0.0491)	-0.147*** (0.0535)	-0.125** (0.0554)
consistency	0.189*** (0.0506)	0.169*** (0.0514)	0.171*** (0.0518)	0.189*** (0.0516)	0.182*** (0.0506)	0.161*** (0.0530)	0.163*** (0.0512)
math grade			-0.128*** (0.0396)				
math grade (adjusted)				-0.143*** (0.0363)			-0.140*** (0.0426)
incentivized risk friendliness					0.0270 (0.0353)		0.0262 (0.0355)
incentivized patience					-0.00793 (0.0438)		-0.0160 (0.0429)
openness						0.0185 (0.0383)	0.0123 (0.0378)
conscientiousness						0.0126 (0.0521)	0.00263 (0.0476)
extraversion						-0.00543 (0.0476)	0.00770 (0.0469)
agreeableness						0.0465 (0.0432)	0.0261 (0.0408)
neuroticism						-0.0602 (0.0501)	-0.0428 (0.0473)
confidence							0.0563 (0.0383)
impulsiveness							-0.00140 (0.0358)
baseline controls	✓	✓	✓	✓	✓	✓	✓
demographic controls	✓	✓	✓	✓	✓	✓	✓
R-squared between	0.597	0.600	0.619	0.630	0.593	0.602	0.638
N (consultant-months)	2610	2489	2489	2610	2610	2610	2610
N (consultants)	168	159	159	168	168	168	168

Notes: Estimates are from linear random effects regressions. The dependent variable is the monthly deal measure, which consists of placements with weight 1, contract extensions with weight 1/2, and retainer entries with weight 1/3. The number of observations is reduced because of missing values in math grades in Column 3. Column 2 is the same specification as Column 1, but with consultants dropped who did not report their math grade. Personality variables, preferences, and grades are standardized. For the adjusted math grade, missing values are set to -1.5 standard deviations. Demographic controls are age, age squared, gender, and having Abitur. The baseline controls consist of division, tenure, tenure squared, and a set of dummy variables: sector $\times$ year-quarter, location $\times$ year-quarter, and year-quarter of job start. Robust standard errors in parentheses, clustered on the consultant level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A5: Relationship of perseverance and consistency with job activity and performance – baseline model

Division:	pooled						permanent			contract	
DV: [monthly]	total projects (1)	good projects (2)	bad projects (3)	meetings (4)	candidate suggestions (5)	interviews (6)	placements (7)	sales (8)	retainer (9)	placements (10)	extensions (11)
perseverance	0.431 (0.755)	-0.316*** (0.120)	0.775 (0.740)	-0.00722 (0.367)	-45.41 (36.88)	-0.532** (0.224)	-0.117** (0.0593)	-1782*** (581)	-0.00177 (0.0579)	-0.125** (0.0621)	-0.0462 (0.0386)
% sample mean	2.6%	-14.6%	5.3%	-0.1%	-15.9%	-12.8%	-21.8%	-24.9%	-0.5%	-18.1%	-10.2%
consistency	0.872 (0.748)	0.377*** (0.109)	0.476 (0.732)	0.873** (0.380)	80.63** (33.10)	0.705*** (0.225)	0.121*** (0.0455)	1909*** (540)	-0.0168 (0.0632)	0.180*** (0.0633)	0.131*** (0.0352)
% sample mean	5.2%	17.4%	3.2%	11.8%	28.2%	17.0%	22.5%	26.7%	-4.7%	25.9%	29.0%
baseline controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
R-squared between	0.348	0.600	0.373	0.528	0.629	0.622	0.757	0.774	0.585	0.606	0.743
<i>N</i> (consultant-months)	2722	2722	2722	2722	2722	2722	962	962	962	1584	1584
<i>N</i> (consultants)	168	168	168	168	168	168	67	67	67	98	98

Notes: Estimates are from linear random effects regressions using standardized personality variables. I also report relative effect sizes, relating point estimates to the sample mean of the dependent variable. The baseline controls consist of division, tenure, tenure squared, and a set of dummy variables: sector $\times$ year-quarter, location $\times$ year-quarter, and year-quarter of job start. Robust standard errors in parentheses, clustered on the consultant level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A6: Relationship of perseverance and consistency with job activity and performance – separate regressions

Division:	pooled						permanent			contract	
DV: [monthly]	total projects (1)	good projects (2)	bad projects (3)	meetings (4)	candidate suggestions (5)	interviews (6)	placements (7)	sales (8)	retainer (9)	placements (10)	extensions (11)
perseverance	0.910 (0.638)	-0.0976 (0.106)	1.036* (0.630)	0.500* (0.293)	0.955 (26.88)	-0.126 (0.180)	-0.0540 (0.0496)	-782.4 (609.2)	-0.0106 (0.0515)	-0.0137 (0.0406)	0.0324 (0.0301)
% sample mean	5.4%	-4.5%	7.0%	6.8%	0.3%	-3.0%	-10.0%	-11.0%	-3.0%	-2.0%	7.1%
R-squared between	0.348	0.571	0.373	0.500	0.615	0.597	0.734	0.749	0.583	0.577	0.721
consistency	1.136* (0.636)	0.186* (0.0971)	0.951 (0.624)	0.869*** (0.301)	53.44** (22.86)	0.388** (0.180)	0.0692* (0.0387)	1125.9** (523.7)	-0.0176 (0.0555)	0.109** (0.0473)	0.0991*** (0.0245)
% sample mean	6.7%	8.6%	6.5%	11.8%	18.7%	9.4%	12.9%	15.8%	-4.9%	15.6%	21.8%
R-squared between	0.344	0.583	0.363	0.531	0.623	0.610	0.735	0.746	0.585	0.621	0.744
grit	1.164* (0.653)	0.0718 (0.102)	1.111* (0.641)	0.790*** (0.297)	34.83 (23.15)	0.191 (0.176)	0.0267 (0.0415)	477.3 (560.4)	-0.0175 (0.0551)	0.0567 (0.0395)	0.0755*** (0.0251)
% sample mean	6.9%	3.3%	7.5%	10.7%	12.2%	4.6%	5.0%	6.7%	-4.9%	8.2%	16.6%
R-squared between	0.349	0.573	0.370	0.524	0.617	0.601	0.729	0.741	0.584	0.598	0.737
baseline controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<i>N</i> (consultant-months)	2722	2722	2722	2722	2722	2722	962	962	962	1584	1584
<i>N</i> (consultants)	168	168	168	168	168	168	67	67	67	98	98

Notes: Estimates are from linear random effects regressions using standardized personality variables. I also report relative effect sizes, relating point estimates to the sample mean of the dependent variable. The baseline controls consist of division, tenure, tenure squared, and a set of dummy variables: sector $\times$ year-quarter, location $\times$ year-quarter, and year-quarter of job start. Robust standard errors in parentheses, clustered on the consultant level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

B Data Preprocessing Steps

B.1 Survey data

Missing values in the survey data occur for specific control variables because of inconsistent lottery choices or nonreport. For 16 consultants, incentivized risk friendliness is missing because of inconsistent lottery choices. I impute missing values using a random forest algorithm (Stekhoven and Buhlmann, 2012). The algorithm uses the reported measure of risk friendliness, the incentivized measure of patience, and all other personality items for prediction. Similarly, one missing value in incentivized patience is imputed. Math grades contain 9 missing values because of nonreport, which I replace by a bad grade—as discussed in the context of robustness in Section 7.1. Lastly, reported age contains one missing value, which I set to the median age among consultants with the same sex and university graduation status.

B.2 Firm data

I manually checked the firm data for plausibility by comparing monthly job performance with monthly commissions and absences, which are merged from different raw data reports. A salient issue were long periods of zero deals which in some cases appeared to be, in fact, missing values. First, there are 2 consultants with parental leaves, for whom monthly performance and job activity was zero during their leave. I drop the performance data of the 2 consultants for the months in which they were fully absent in connection with parental leave, adding commissions payed out during their absence to commissions in their last active month. For some consultants in the permanent division, however, the long periods of zeros were implausible given substantial commissions and uninterrupted performance in the other measures of job activity.

In the permanent division, it is straightforward to verify the plausibility of long periods of zero deals using monthly commissions, given that placements generate a one-off chunk of commission. I replace long periods of zero deals and sales with missing values for 12 consultants because substantial commissions and uninterrupted job activity suggest a salient break-off in the reporting of deals. The long periods of zeros which I set to missing values span at least 6 consecutive months and occur mostly after an average of 16 months on the job. The affected 12 consultants do not differ in their level of perseverance, also when controlling for consistency. Table B1 compares the main results from Table 2 with alternative procedures: (i) no correction, i.e., maintaining long periods of zeros, except in cases of parental leave, and (ii) dropping all

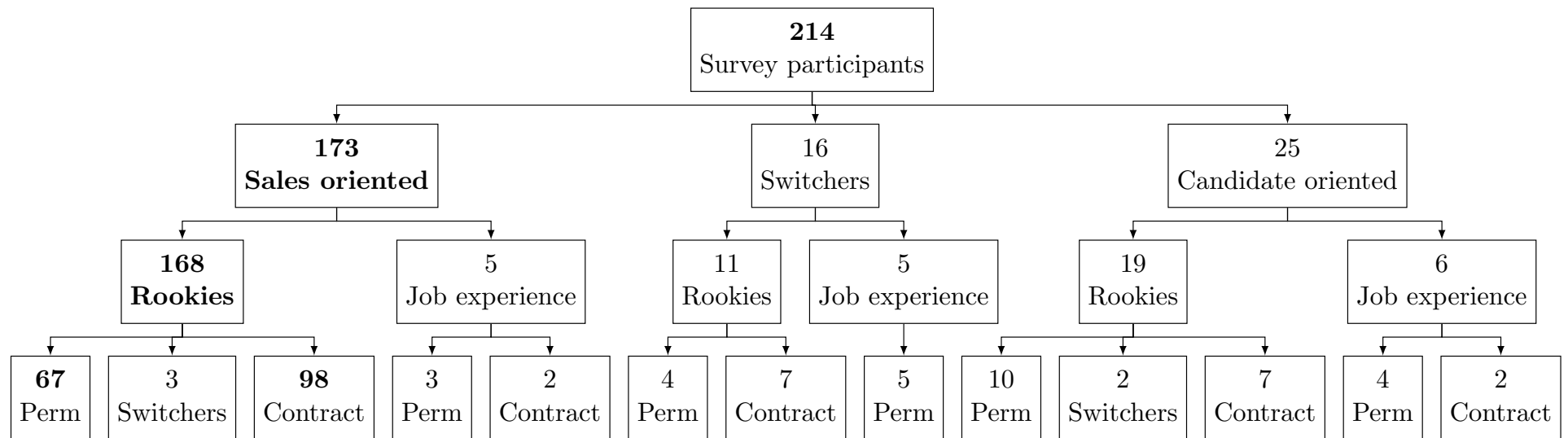
Table B1: Main results with alternative data handling procedures

DV [monthly]:	deal measure			sales		
	(1)	(2)	(3)	(4)	(5)	(6)
perseverance	-0.115** (0.0493)	-0.115** (0.0496)	-0.115** (0.0506)	-1781.9*** (581.4)	-1991.6*** (563.8)	-1705.2*** (631.4)
consistency	0.184*** (0.0492)	0.186*** (0.0505)	0.184*** (0.0509)	1909.4*** (540.4)	2186.9*** (547.7)	1731.2*** (498.8)
baseline controls	✓	✓	✓	✓	✓	✓
Alternative procedures						
No correction		✓			✓	
Dropping 12 consultants entirely			✓			✓
DV sample mean	0.816	0.782	0.820	7144.4	6399.4	6752.3
R-squared between	0.592	0.597	0.626	0.774	0.767	0.835
<i>N</i> (consultant-months)	2610	2722	2437	962	1074	789
<i>N</i> (consultants)	168	168	156	67	67	55

Notes: This table replicates the main results from Table 2, Columns 2 and 5. The alternative procedures are: (i) maintaining long periods of zeros, except in cases of parental leave, and (ii) dropping all performance data of the 12 consultants who exhibit implausible long periods of consecutive zeros in the reporting of deals and sales (see Section B.2). Estimates are from linear random effects regressions; personality variables are standardized. The deal measure consists of placements with weight 1, contract extensions with weight 1/2, and retainer entries with weight 1/3. Robust standard errors in parentheses, clustered on the consultant level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

performance data of the 12 consultants entirely rather than just dropping the long periods of zeros. Results are very similar.

Figure B1: Obtaining the main sample among 214 survey participants



Notes: The tree shows how the 214 survey participants differ by task, previous job experience in recruitment consulting, and division. Division is permanent or contract, where “perm” is shorthand for permanent. Previous job experience is assumed whenever a consultant started the job with a higher job title than the entry-level job title. Overall, my main sample of consultants consists of 168 sales-oriented consultants who started on the lowest hierarchical level (“rookies”).