

## **AGGREGATED PERSONALITY, CLIMATE AND DEMOGRAPHIC FACTORS AS PREDICTORS OF DEPARTMENTAL SHRINKAGE**

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**ABSTRACT:** The present study investigated how demographic, personality, and climate variables act to predict departmental theft. Participants in the current field survey were 153 employees from 17 departments across two stores. The results of confirmatory factor analyses supported the construct validity of the Big Five Inventory (John, Donahue, & Kentle, 1991) and the Occupational Climate Questionnaire (Furnham & Gunter, 1997) in UK work settings. The results of regression analysis indicate that the variability in departmental theft is accountable in terms of a linear combination of demographic, personality, and climate factors. We concluded that an expanded theoretical perspective (utilizing demographic, personality, and climate variables) explained more variance than might otherwise be expected from any single perspective. Indeed, climate, personality, and demographic variables operated legitimately at the departmental level. Finally, we explained *aggregated personality* as a form of social interaction which is the by-product of individual differences.

**KEY WORDS:** shrinkage; theft; aggregated personality; occupational climate.

### INTRODUCTION

Employee theft is a pervasive financial problem that appears to be increasing with time (e.g., Greenberg, 1997; Murphy, 1993). To address

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the problem, the academic literature on employee theft predominantly focuses on determinants of individual employee integrity in selection settings (e.g., Wanek, 1999). There is also a desire to understand why theft occurs with job incumbents. To this end, some authors use departmental shrinkage or stock loss rates, documented financial inventory losses, to indicate organizational theft. Shrinkage rates encompass both 'detected and undetected' theft, allow for conclusions about organizational units but not individuals, and overcome some of the potential problems of self-report measures of honesty (Sackett & Harris, 1984). A potential limitation of shrinkage figures as an indicator of dishonesty is that it can result from several causes (e.g., shoplifting or employee theft). However, Rupe (1980) estimates that 60% of all inventory losses are attributable to employee theft, 30% to shoplifters external to the organization, and 10% due to paperwork errors. Hence, one use of shrinkage is as an integrity program validation strategy, whereby theft is monitored before and after the introduction of an integrity test intervention (e.g., Brown, Jones, Terris & Steffy, 1987; Jones & Terris, 1983; Terris & Jones, 1982).

Unlike the above integrity program validation studies, Cherrington and Cherrington (1985) investigated the relationship between shrinkage and organizational climate. They found shrinkage is uninfluenced by company size and being in a geographical location with higher theft levels, but is inversely related to honesty, satisfaction with the company and satisfaction with life in general. However, their analysis compared psychological variables by department stores and so the hypothesis tested was that the department predicts the other variables (e.g., individual financial pressure, climate).

Climate (see Dansereau & Alutto, 1990; Zohar, 2000 for definitions) provides an interesting situational framework to understand how departmental theft operates at the level of the organizational unit (Cherrington & Cherrington, 1985; Murphy, 1993). Murphy (1993) argues that organizational climate exerts a critical influence on ethical, or unethical, behavior at work. Supporting this view, research demonstrates climates exist for whistle-blowing (Miceli & Near, 1985), ethics (Victor & Cullen, 1988) and employee theft (Cherrington & Cherrington, 1985). However, as climate has no agreed general structure, studies often investigate how specific climates relate to a given criterion (e.g., the relationship between whistle-blowing climate and self-reported whistle-blowing; Miceli, & Near, 1985).

Researchers are beginning to investigate the influence of climate in general on organizational behavior (e.g., Furnham & Gunter 1997). Due to their influence on job related behaviors, general aspects of climate may relate to employee theft in different ways. A well-defined reward system allows management to express its goals clearly to employees. Indeed, Greenberg (1997) explains theft partially in terms of perceptions

of injustice. Several authors argue that high morale and commitment may reduce the likelihood of theft (e.g., Murphy, 1993) and others demonstrate empirical support such a relationship (e.g., Fritz, Arnett & Cokel 1999; Hollinger & Clark, 1983). Furthermore, Murphy (1993) suggests innovation relates inversely to theft, as may be case with role clarity. In sum, there appears to be good reason to expect that certain general aspects of climate influence employee theft.

*Hypothesis 1.* Departments with higher shrinkage levels will place greater importance on (a) the reward system and (b) innovation. However, less importance will be emphasized on (c) respect, (d) morale and (e) role clarity.

Trait psychologists mostly agree that personality consists of five factors; Openness, Neuroticism, Conscientiousness, Extraversion and Agreeableness, or similar labels (e.g., John, Angleitner & Ostendorf, 1988), despite exceptions (e.g., Eysenck, 1997). An extensive literature addresses the relationship between personality and integrity testing for selection purposes and is summarized by the meta-analysis of Ones, Viswesvaran and Schmidt (1993; see also Hermelin & Robertson, 2001; Sackett, & Wanek, 1996). They demonstrate that conscientiousness, agreeableness and emotional stability, respectively, make an independent contribution to predicting integrity, beyond specific integrity indices. Indeed, most studies of workplace integrity occur at the individual level of analysis (e.g., Ones & Viswesvaran, 2001). However, evidence suggests that behavior can operate at aggregate levels. Epstein (1980), in demonstrating behavioral consistency, shows that aggregated data is more reliable than individual measurement as incidental factors cancel out and validity increases (see Ostroff, 1993). Epstein (1980) identifies four types of aggregation: over situations, over trials, over measures and over subjects which is the most widely used form in psychological research to compare experimental conditions and is the current focus.

Early research on personality aggregation by George (1990) proposes and demonstrates that people with similar personalities tend to be found in similar occupational groups through a process of attraction-selection-attrition. Jackson and Corr (1998) show that aggregation increases the correlations between personality and job performance and so demonstrate criterion related validity of aggregated personality. Others too demonstrate personality and ability influence work team processes and effectiveness (Barrick, Stewart, Neubert & Mount, 1998). Here, we extend earlier works to consider personality aggregation in organizational departments. However, regarding construct validity, what does 'aggregated personality' represent? A department that is on average more agreeable, for example, consists of generally agreeable people, although

agreeableness within groups varies so no inference can be made of individuals. Thus, personality aggregation *may* represent social interaction in departments as a by-product of individual differences.

*Hypothesis 2.* Departments with higher shrinkage will be less (a) conscientious, (b) agreeable, but more (c) neurotic, (d) extraverted, and (e) tentatively open.

As with personality, authors also suggest demographic factors influence theft. For example, Ones and Viswesvaran (1998) found that for overt integrity tests women scored higher than men, little differences between the old and young (although this maybe due to dichotomization) and minor race differences in over 680,000 job applicants in some 100 organizations. Other demographic factors thought to influence theft include: age (younger), part-time employment, and tenure (e.g., Murphy, 1993). However, organizational studies generally do not consider how demographic variables predict theft at the aggregate level of analysis.

*Hypothesis 3.* Higher shrinkage will be found in departments with (a) more males, (b) younger employees, (c) part-time workers, (d) low tenure, and (e) lower job statuses.

## METHOD

### *Respondents and Procedure*

In a voluntary survey, 350 questionnaires were distributed to employees from 2 department stores consisting of 17 departments located in Southern England, to which 153 (43.7%) employees completed and returned the questionnaires.

*Measures.* Following managerial consultation it was agreed the measures consist of demographics, personality, climate and departmental shrinkage.

*Demographics.* The demographic variables included, age, sex, job title, tenure and employment status and were responded to categorically to ensure participant confidentiality. A high score represented: being female, older, a higher job title, greater tenure and full-time employment.

*Personality.* The Big Five Inventory (BFI; John, Donahue & Kentle, 1991) was used to assess personality in terms of Extroversion, Agreeableness, Conscientiousness, Neuroticism, and Openness. The BFI consists of 44 items in short format, based on prototype definitions of the big five. Responses are rated on a five point Likert scale ranging from 1

(*Disagree Strongly*) to 5 (*Agree Strongly*). The BFI compares well to other measures of the Big Five, demonstrates cross cultural validity and has been used in other settings (see Benet-Martinez & John, 1998).

*Climate.* To measure of climate we used an appended version of the Occupational Climate Questionnaire (OCQ; Furnham & Gunter, 1997). The appended OCQ was chosen as it consists of many constructs thought to relate to shrinkage, assesses general aspects of climate, shows high reliability and was previously validated on an English sample working in a similar geographic location to the present sample (Furnham & Gunter, 1997). The appended OCQ consists of 5 scales measured by 33 items. The scales assess climate ratings using a 7 point Likert scale ranging from 1 (*Extremely Unimportant*) to 7 (*Extremely Important*) and so assess the degree to which each scale represents meaning to the workings of the company. The OCQ scales are described as follows: Role Clarity is the extent to which the job is clearly defined; Respect is the extent to which the individual is valued by the organization; Reward System is the extent to which deserving work receives recognition; Innovation is whether the organization encourages ideas, and develops future plans; and Commitment and Morale reflects affective organizational commitment.

*Departmental Shrinkage.* The dependent variable was an organizational level measure termed '*Shrinkage*,' or *stock loss*. Shrinkage is the documented departmental loss in stock in Pounds Sterling for each departmental storeroom for the past six months before the questionnaire administration. The figures only reflect shrinkage due to departmental theft as only the staff in each department have access to that department's storeroom. The figures were passed to us before data collection to ensure no contamination of results and ranged from £58.00 to £23,134 (approximately \$87.00 to \$34,701).

*Analysis.* Two aspects of the analysis are noteworthy. First, as the BFI has not been validated in British organizational settings and an appended version of the OCQ was used, confirmatory factor analysis at the individual level of analysis is necessary to demonstrate construct validity. Second, when shrinkage is analyzed all variables are aggregated to the departmental level of analysis. The rationale to this procedure is stated thus: departmental shrinkage is a level two (organizational level) variable rather than a level one (individual level) variable. To relate lower level entities onto higher level entities results in erroneous results and confusion in interpretation. The alternative, multi-level modeling (e.g., Ostroff, 1993), is appropriate only when the dependent variable is a level one variable, which shrinkage is not. Consequently, by aggregation, the remaining variables become departmental level variables and

regression is permissible. Two final points are noteworthy at this stage. First, aggregation decreases within cell variance in regression, hence the variance explained is often higher than individual level analyses. Second, aggregation permits conclusions only regarding departments and not about individuals.

## RESULTS

Table 1 shows the means, standard deviations and coefficient alphas of each scale at the individual level of analysis and the correlations of the scales with shrinkage at the aggregate departmental level. Table 1 shows that internal consistencies for personality ranged from a moderate .69 to a good .82 and for climate ranged from a reasonable .73 to a good .84. Together this suggested that the internal consistency of the scales was acceptable.

To test the construct validity of the scales confirmatory factor analysis (CFA), using LISREL 8.3 (Jöreskog, & Sörbom, 1996) was performed at the individual level of analysis. Unlike exploratory factor analysis, in CFA the number of factors and the items that load on each factor are specified in advance. CFA of the BFI items showed the resultant  $\chi^2$  fit index was significant and so indicated a poor fit to the data ( $\chi^2 = 1473.22$ ,  $df = 869$ ,  $p < 0.01$ ), however, as  $\chi^2$  is sample size sensitive it is undependable. However, the Root Mean Square Error of Approximation (RMSEA)

**Table 1**  
Means, Standard Deviations, Item Lengths, Alphas of Scales Used (N = 153) and Their Aggregate Level Bivariate Correlations with Departmental Shrinkage

	<i>Scale</i>	<i>Items</i>	<i>Mean</i>	<i>SD</i>	<i>Alpha</i>	<i>r</i>
BFI	Extraversion	8	3.60	.68	.74	-.41*
	Agreeableness	9	3.95	.62	.74	-.16
	Conscientiousness	9	3.82	.74	.82	-.19
	Neuroticism	8	2.53	.75	.76	-.32*
	Openness	10	3.46	.57	.69	-.13
Climate	Role Clarity	5	6.05	4.32	.73	-.13
	Respect	6	6.09	4.29	.74	-.37*
	Reward System	8	5.89	6.59	.79	.41*
	Innovation	5	5.80	4.40	.81	.14
	Morale	9	6.13	6.96	.78	-.05

*Note.* All columns are based on individual level correlations, with the exception of the rightmost column which consists of the bivariate correlations between each variable and departmental Shrinkage. As such, this column reflects aggregate variables. Significance levels are \* $p < 0.05$ .

is a fit index that assesses the discrepancy of fit between the model and the data. The observed RMSEA = 0.06 suggested the model is a good fit to the data (Hu & Bentler, 1999). Next, CFA of the OCQ items initially indicated a poor fit of the model to the data ( $\chi^2 = 743.49$ ,  $df = 463$ ,  $p < 0.01$ ). However, the RMSEA = 0.06 suggested that the model was a good fit to the data. In sum, CFA supported the scales' construct validity at the individual level of analysis.

The variables were aggregated to the departmental level of analysis and bivariate correlations with shrinkage computed. As can be seen from Table 1, significant correlates with shrinkage included Neuroticism, Extraversion, Reward System and Respect. Table 2 shows the entry regression model of the demographic, climate and personality variables onto shrinkage at the aggregate level of analysis. The results of the multiple regression model significantly accounted for 94% of the variance in Shrinkage ( $df = 15, 1$ ,  $F = 1362.14$ ,  $p < 0.05$ ) in terms of a linear combination of Job Title, Employment Status, Tenure, Age and Sex, Reward System, Respect, Morale, Role Clarity, Conscientiousness, Agreeableness, Neuroticism, Extraversion and Openness.

Aggregate differences in climate ratings were compared to address the salience of the climate dimensions. ANOVA showed that the climate ratings significantly differed within the organization ( $F = 254.381$ ,  $df = 4$ ,  $P < 0.01$ ). Post Hoc comparisons by Dunnett T3 indicated Innovation was rated as less important than Morale, Reward System, Respect and

**Table 2**  
Multiple Regression of Dependent Variable Departmental Shrinkage

	<i>Beta</i>	<i>T</i>	<i>P</i>	<i>R</i>	<i>R</i> <sup>2</sup>	<i>Adj. R</i> <sup>2</sup>
Sex	1.22	56.04**	0.01			
Age	0.74	23.63**	0.03			
Job Title	-0.70	-22.80**	0.03			
Employee Status	1.06	37.29**	0.02			
Tenure	-0.32	-15.50**	0.04			
Reward System	1.46	53.38**	0.01			
Respect	-0.25	-15.06**	0.04			
Morale	-0.68	-21.25**	0.03			
Innovation	-0.34	-6.72	0.09			
Role Clarity	0.26	15.11**	0.04			
Conscientiousness	-1.40	-28.94**	0.02			
Agreeableness	0.49	20.94**	0.03			
Neuroticism	-1.00	-26.50**	0.02			
Extraversion	-0.52	-11.94*	0.05			
Openness	0.79	23.97**	0.03			
				1.00	.97	0.94*

*Note.* Significance levels are \* $p < 0.05$  and \*\* $p < 0.01$ , respectively.

Role Clarity, in that order ( $p < 0.05$ ). Role Clarity ratings were significantly less salient than Morale and the Reward System ( $p < 0.05$ ) but not Respect. Morale was rated as significantly more important than Respect and Reward system ( $p < 0.05$ ). Reward System was rated as significantly more important than Respect ( $p < 0.05$ ).

## DISCUSSION

The results show that the linear combination of aggregated climate, personality and demographic factors predict departmental shrinkage. Furthermore, at the individual level of analysis, CFA supported the construct validity of the BFI (John, Donahue, & Kentle, 1991) and the appended OCQ (Furnham & Gunter, 1997) in these settings.

As hypothesis one suggests climates of low Morale, low Respect and high Reward System predicted shrinkage, which provides evidence of the utility of general aspects of climate. The latter two climate variables were significant correlates as well as predictors in the regression model. High Role Clarity was a significant predictor of increased shrinkage, although not in the direction hypothesized. Broadly, in departments where the job is clearly emphasized and work positively rewarded theft increases. One possible explanation is that the job is too well defined so workers sidestep a formal and restrictive system as a form of retaliation to steal from the organization (Greenberg, 1997). Innovation failed to predict departmental shrinkage. This may reflect the retail department setting as the results show innovation is the least important climate dimension.

In accordance with the second hypothesis all five personality factors significantly predict shrinkage, but not always in the direction hypothesized. The findings of the significance of aggregate Conscientiousness extends earlier research at the individual level of analysis to that of the departmental unit. However, Agreeableness, a significant correlate and predictor, and Neuroticism were in the opposite direction to our hypothesis based on earlier findings at the individual of analysis. This *may* suggest that over dependence on these scales in selection could result in consequences contrary to those intended. Introverted (a significant correlate as well as predictor) and Open departments had higher shrinkage levels. These findings do not emerge in workplace integrity studies at the individual level of analysis.

As with personality, the results support our third hypothesis that addresses demographic variables as predictors of shrinkage. The results show higher shrinkage in departments of lower job titles, full-time status, less tenure, older and female. With the exception of full-time employee status this pattern extends to the departmental level of analysis

what is known of theft at the individual level of analysis (Murphy, 1993). It may be that departments with full time employees are well socialized to commit theft as the socialization process differs from part-time workers (see Mars, 1999).

A number of limitations, suggestions for further research and implications are evident from this study. The present study is limited by using aggregated data hence the regression coefficients may have increased, due to the restricted variance of the predictors of departmental theft. The alternatives are to analyze the data at the individual level of analysis by the disaggregation or multi-level modeling (Ostroff, 1993). However, the disaggregation of shrinkage would violate the statistical independence assumption and multi-level modeling is inappropriate as the dependent variable must be a level 1 variable, which is not true of departmental shrinkage. However, the aggregate level analyses should be interpreted with caution as there were only 17 departments (cases) and hence statistical power was weak. Despite this, it is possible the amount of variance explained also increased due to the variety of variables used from multiple theoretical perspectives.

Turning to suggestions for future studies. First, future studies may wish to assess how generic aspects of climate (e.g., Furnham & Gunter, 1997) relate to climates of theft or integrity measures. Second, as both this study and earlier work suggests, aggregated personality and climate measurement provides an interesting supplement to individual level analyses, hence we recommend future studies combine multi-level (Ostroff, 1993) and multi-method methodologies to improve our understanding of organizational theft.

Finally, three implications emerge from the present study. First, the study highlights the utility of more than one perspective. Second, general aspects of climate influence theft. This is particularly valuable information as companies may wish to investigate theft without the intrusiveness of integrity measures. Third, aggregate level personality factors predict theft, although not necessarily in the same direction as individual level findings. This suggests the need for greater research into the consequences of personality based selection. Together this allows us to conclude, as Schneider (1987, p. 437), suggests, it is 'the people make the place.'

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