

COVID-19 and organisational performance: a quasi-longitudinal and multilevel study of Greece

ANASTASIA A. KATOU

Abstract

Based on threat-rigidity theory, the purpose of this study is to examine the effect of organisational responses to COVID-19 on organisational performance, through the serially mediating mechanism of employee motivation and employee work engagement. The research analysis is based on two surveys referring to Greek organisations, which were conducted six months apart in 2020 and 2021. Using a quasi-longitudinal and multilevel structural equation modelling approach, the findings suggest that the first wave of the COVID-19 pandemic led to a decline in organisational performance due to fear and uncertainty which weakened employee motivation. The second wave of the COVID-19 pandemic revealed a trend of organisational performance returning to its initial equilibrium. Based on these findings, which underline the meaning of the serially mediating mechanism of employee motivation and employee work engagement, the study has several theoretical and practical implications.

DOI: 10.23762/FSO_VOL9_N04_6

Key words

Organisational responses to COVID-19, employee motivation, employee work engagement, organisational performance, Greece

Anastasia A. Katou

e-mail: akatou@uom.edu.gr
University of Macedonia, Thessaloniki,
Greece

Introduction

In view of the rapid and global spread of COVID-19, the World Health Organisation declared the characterisation of COVID-19 as a pandemic on 11 March 2020 (Krammer, 2021). As a result, governments around the world responded to the crisis by imposing lockdowns at a local or national level, in order to stabilise virus infection rates, decrease

hospitalisations in intensive care units, and finally avoid deaths (Alvarez, 2020). While COVID-19 was spreading within and among countries, “organisations, irrespective of size, sector or country of operation were being affected right across the value chain” (ACCA, 2020, p. 12). However, organisations aiming for short-term survival and long-term recov-

ery started imposing adjustments to employee remuneration (e.g. salary and bonus cuts), employment approaches (e.g. recruitment and salary freezes), and employee shortcuts (e.g. voluntary and mandatory unpaid leave) (ACCA, 2020).

Faced with the COVID-19 pandemic, the European Union (EU) organised a Recovery and Resilience Facility (RRF), aiming to facilitate the short-term survival and the long-term recovery of the economies and the organisations of the EU member-states. In particular, Greece is placed to receive €30.5 billion during its recovery and resilience plan, from which €17.8 billion will be grants and €12.7 billion in loans. From this budget, €4 billion has already been disbursed to Greece in pre-financing (European Commission, 2021).

Governments, following the intensity of the various waves of COVID-19, proposed frequent and substantial changes to the social lives of citizens. In response to these changes, organisations frequently adjusted their operational models to take advantage of governmental policies due to COVID-19. However, it is argued (e.g. Couch et al., 2020; Wynen et al., 2020) that the frequent changes and adjustments usually create fear and uncertainty in employees, which in turn has an impact on organisations. For this reason, I argue that fear and uncertainty in employees may make them less motivated and therefore less engaged in organisational operations, resulting in the weakening of organisational performance.

The purpose of this study is to investigate whether frequent organisational adjustments due to COVID-19 have a negative effect on organisational performance. The investigation of this effect is based on the threat-rigidity theory, which predicts effects that are based on organisational experiences

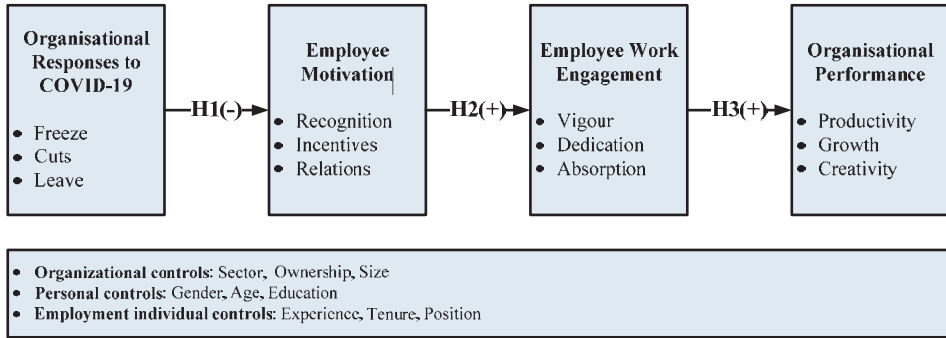
referring to threatening situations (Amabile and Conti, 1999; Staw et al., 1981). In particular, the threatening situation is reflected in the organisational adjustments made due to COVID-19. This situation, as the initiating factor that has an impact on organisational performance, activates a serially mediating mechanism constituted by employee attitudes and employee behaviours.

In order to empirically test the relationship between organisational adjustments due to COVID-19 and organisational performance, survey data were collected from Greek organisations. Greece is a member-state of the EU that has been heavily affected by the COVID-19 pandemic. Taking into account the fact that employees in the survey are nested in organisations, the phenomenon was examined by means of the application of multi-level structural equation modelling. Finally, in order to test whether the dynamics of the frequent changes due to the pandemic have had an effect on the aforementioned relationship, the data were collected in two surveys which were conducted six months apart. However, this does not mean that the investigation in the study is longitudinal. On the contrary, it is quasi-longitudinal, because both organisations and employees were not the same across the two surveys.

1. Research framework and hypotheses

Figure 1 presents a research framework linking a *situational factor* (reflected in organisational adjustments to COVID-19) with *organisational performance*, through the serially mediating mechanism of *employee attitudes* (reflected in employee motivation) and *employee behaviours* (reflected in employee work engagement). In more detail, the proposed framework is explained below:

Figure 1. The conceptual model



Source: own elaboration

1.1. Situational factor and employee motivation

A large-scale global survey of organisations of all sizes and across all sectors indicated that the most widespread concern facing organisations during the first wave of COVID-19 was employee productivity (ACCA, 2020). This may indeed have been the case, insofar as that the organisational responses to COVID-19, by creating a risky and insecure work climate, have made employees fearful for their future. Indeed, by frequently adjusting their operational models in terms of recruitment, rewards and shortcuts, organisations create a working climate that may be described in general terms as “what and who is next”. According to the threat-rigidity theory, “threats resulting from common or familiar problems may induce effective coping responses from individuals, while threats arising from radical environmental change may bring on a maladaptive reaction” (Staw et al., 1981). In our case, the threats resulting from the COVID-19 environment produce a maladaptive reaction from employees and make them less motivated to work.

Employee motivation is defined as “a set of energetic forces that originates both within as well as beyond an individual’s being, to initiate work-related behaviour, and to determine its form, direction, inten-

sity, and duration” (Pinder, 1998, p. 11). *Direction* refers to the person’s choice of possible alternative activities. *Intensity* refers to the effort a person makes to complete the activity they have chosen. *Persistence* refers to the time a person continues to devote to completing the activity they have chosen (Ivancevich et al., 2005). Although the core of motivational philosophy depends on the structure of the research framework where it is applied (Koszela, 2020), it is argued that employee motivation is essentially achieved through three organisational approaches: Employee *recognition*, when the organisation acknowledges excellent performance; employee *incentives*, when the organisation offers promotions and bonus plans; and good *relationships*, when the organisation builds mutually beneficial relationships with its employees (Pinder, 1998).

In summary, motivation is described as “how workers guide their efforts to achieve goals, including *intrinsic motivation* (enjoying work for its own sake) and *extrinsic motivation* (working to get a reward)” (CIPD, 2021, p. 3). However, I argue that in the current turbulent environment which has resulted from the COVID-19 pandemic, it is very difficult for organisations to be able to adequately foster the intrinsic motivation of their employees, because employees work in a continuously changing and unsafe environment. Similarly, it is very difficult for

organisations to be able to adequately foster the extrinsic motivation of their employees, because employees work in an environment

where rewards are subject to unexpected cuts. Thus, I hypothesise that:

H1: A negative relationship exists between organisational adjustments to COVID-19 and employee motivation.

1.2. Employee motivation and employee work engagement

There are dozens of different definitions of employee work engagement (MacLeod and Clarke, 2009). In this study, *employee work engagement* is defined as “a positive, fulfilling, work-related state of mind that is characterised by vigour, dedication, and absorption” (Schaufeli et al., 2002, p. 74). “*Vigour* is characterised by high levels of energy and mental resilience while working, the willingness to invest effort in one’s work, and persistence even in the face of difficulties. *Dedication* refers to being strongly involved in one’s work and experiencing a sense of significance, enthusiasm, inspiration, pride, and challenge. Finally, *absorption* is characterised by full concentration and being happily engrossed in one’s work, whereby time passes quickly and one has difficulties to detach oneself from work” (Schaufeli and Salanova, 2007, p. 180).

H2: A positive relationship exists between employee motivation and employee work engagement.

1.3. Employee work engagement and organisational performance

Over the last decade, employee work engagement has become a very popular concept in mainstream management thinking (Young and Gifford, 2021), with a focus on whether there is a positive causality between employee work engagement and performance. In particular, Bakker and Demerouti (2008) support this line of thought by indicating numerous reasons, related to vigour, dedication and absorption, to explain the reasons why engaged workers perform better.

However, performance may take various forms. In this study, I refer to organisation-

Considering that employee motivation reflects employee attitudes and employee work engagement reflects related employee behaviours, it is generally recognised that employee motivation precedes employee work engagement. This means that employee motivation constitutes a key driver of employee work engagement (Bakker and Albrecht, 2018). For example, Albrecht et al. (2015), based on numerous theoretical frameworks, found that motivational factors positively influence engagement. Similarly, Saks and Gruman (2017), based on the factors of the AMO (ability, motivation, and opportunity) model, suggest that there is a relationship between motivation and engagement. Further, Katou (2018), based on the motivational nature of employee pro-social voice, found that this type of motivation positively predicts employee work engagement. Accordingly, I hypothesise that:

al performance, which may be indicated by the following dimensions: *effectiveness* (i.e. if the organisation meets its objectives) (Rogers and Wright, 1998); *efficiency* (i.e. if the organisation uses the fewest possible resources to meet its objectives) (Dyer and Reeves, 1995); *development* (i.e. if the organisation is developing the capacity to meet future opportunities and challenges) (Phillips, 1996); the *satisfaction* of all participants (i.e. stakeholders, employees, and customers) (Delaney and Huselid, 1996); *innovation* for products and processes (Guest, 2001); and *enhanced quality* for products and services (Delaney and Huselid, 1996; Richardson and Thompson, 1999).

Taking into consideration the fact that extant research (e.g. Albrecht et al., 2015; Katou et al., 2014) supports the premise that there is a positive relationship between employee

work engagement and organisational performance, I hypothesise that:

- H3: A positive relationship exists between employee work engagement and organisational performance.

2. Methods

Sample and Procedure

Data for this research were collected in two different periods approximately six months apart, in October 2020 and May 2021. The same questionnaires were used in the two surveys, and they were distributed to employees of public and private Greek organisations in the manufacturing, services and trade sectors. The approach taken was a convenience paper / pencil sampling method, due to the difficulty in collecting data during the COVID-19 pandemic. The questionnaires were distributed to said employees by students, so-called samplers, who were pursuing management degrees at a Greek business school. These samplers participated

in a seminar on the meaning of the survey, self-bias response errors and the importance of assuring respondents of their anonymity. In minimising sampling error and selection bias, the samplers were advised to collect data from at least two senior managers, two middle managers and four lower-level employees from each organisation (Gerhart et al., 2000). In total, 1859 fully completed questionnaires were returned from 122 organisations in 2020, and 752 fully completed questionnaires from 74 organisations in 2021. The decrease in the sample size between the two surveys may indicate the difficulty that the samplers faced in collecting data during the second wave of COVID-19. The characteristics of both surveys with respect to organisations and employees are presented in Table 1.

Table 1. Sample characteristics

	2020		2021	
	Frequency	Percentage	Frequency	Percentage
Characteristics of sampled organisations	N=122		N=74	
Size (in employees)				
1 - 50	35	28.7	41	55.4
2 51 – 150	39	32.0	18	24.3
3 151 +	48	39.3	15	20.3
Sector				
1 Manufacturing	40	32.8	13	17.6
2 Services	48	39.3	36	48.6
3 Trade	34	27.9	25	33.8
Ownership				
1 Public	19	15.9	14	18.9
2 Private	103	84.4	60	81.1

		2020		2021	
		Frequency	Percentage	Frequency	Percentage
Characteristics of sample respondents		n=1859		n=752	
Gender					
1	Male	1013	54.5	379	50.4
2	Female	846	45.5	373	49.6
Age (in years)					
1	– 30	592	31.8	225	29.9
2	31 – 40	366	19.7	140	18.6
3	41 – 50	518	27.9	198	26.3
4	50 +	383	20.6	189	25.1
Education					
1	Primary	32	1.7	15	2.0
2	High school / Lyceum	566	30.4	220	29.3
3	University	1261	67.8	517	68.8
Tenure					
1	Full-time	1713	92.1	681	90.6
2	Part-time	146	7.9	71	9.4
Seniority (in years)					
1	1 - 5	759	40.8	280	37.2
2	6 – 15	543	29.2	221	29.4
3	16 – 30	494	26.6	198	26.3
4	31 +	63	3.4	53	7.0
Position					
1	Senior managers	289	15.5	154	20.5
2	Middle managers	382	20.5	181	24.1
3	Lower-level employees	1188	63.9	417	55.5

Source: own elaboration

Measures

In the surveys conducted in both 2020 and 2021, five-point ordinal or Likert scales were used. In terms of the Cronbach's alphas (α) that are attached to the dimensions of each construct, the first refers to 2020 (α_{20}) and the second to 2021 (α_{21}).

Organisational responses to COVID-19:

This second-order construct is based on the work of ACCA (2020). It comprises six

items and is measured in three dimensions: recruitment and salary increments *freezing* ($\alpha_{20}=0.815$, $\alpha_{21}=0.874$), with the following items: “recruitment has been frozen in your organisation” and “salary increments have been frozen in your organisation”; salary and bonus *cuts* ($\alpha_{20} = 0.655$, $\alpha_{21} = 0.666$), with the following items: “salary cuts have been imposed in your organisation” and “bonus cuts have been imposed in your organisation”;

and voluntary and mandatory *unpaid leave* ($\alpha_{20} = 0.596$, $\alpha_{21} = 0.654$) with the following items: “voluntary unpaid leave has been imposed in your organisation” and “mandatory unpaid leave has been imposed in your organisation”.

Employee motivation: This second-order construct is based on the work of Lockwood (2010). It comprises 11 items and is measured in three dimensions: *recognition* ($\alpha_{20} = 0.920$, $\alpha_{21} = 0.919$), with the sample item “How motivated do you feel when the organisation personally congratulates you on your excellent work?”; *incentives* ($\alpha_{20} = 0.893$, $\alpha_{21} = 0.895$), with the sample item “How motivated do you feel when the organisation uses performance as the basis for promotion?”; and *relations* ($\alpha_{20} = 0.910$, $\alpha_{21} = 0.918$), with the sample item “How motivated do you feel with the organisation fostering a sense of community?”

Employee work engagement: This second-order construct is based on the work of Schaufeli et al. (2002). It comprises 17 items and is measured in three dimensions: *vigour* ($\alpha_{20} = 0.859$, $\alpha_{21} = 0.884$), with the sample item “When I get up in the morning, I feel like going to work”; *dedication* ($\alpha_{20} = 0.917$, $\alpha_{21} = 0.926$), with the sample item “My job is sufficiently challenging”; and *absorption* ($\alpha_{20} = 0.880$, $\alpha_{21} = 0.941$), with the sample item “When I am working, I forget everything else around me”.

Organisational performance: This second-order construct is based on the work of Delaney and Huselid (1996). It comprises six items and is measured in three dimensions: *productivity* (effectiveness and efficiency) ($\alpha_{20} = 0.747$, $\alpha_{21} = 0.802$); *growth* (development and satisfaction) ($\alpha_{20} = 0.786$, $\alpha_{21} = 0.758$); and *creativity* (innovation and enhanced quality) ($\alpha_{20} = 0.719$, $\alpha_{21} = 0.765$).

Controls: Three types of controls were used in the study: *organisational* controls, referring to the sector (manufacturing, ser-

vices, trade), size (measured in number of employees), and ownership (whether the organisation is public or private); *personal* controls (reflecting the demographics of gender, age and education); and *employment* controls, referring to experience (in terms of the number of years working in the organisation), tenure (distinguishing between full-time and part-time employees), and hierarchical position in the organisation (distinguishing between senior managers, middle managers, and lower-level employees). The detailed measurements and distributions with respect to controls are shown in Table 1.

Statistical analysis

Considering that employees are nested in organisations, multilevel confirmatory factor analysis (MCFA) is used to evaluate the development of second-order scales. Further, multilevel structural equation modelling (MSEM) is used to test the conceptual model presented in Figure 1. For applying both MCFA and MSEM, the maximum likelihood robust (MLR) estimator via Mplus is employed, because this estimator produces parameter estimates with standard errors and a chi-square test statistic that are robust to non-normality and non-independence of observations (Muthén and Muthén, 2017). However, before we apply the MLR estimator, we also examined whether the constructs used in the study follow the normal distribution. To this end, the skewness and kurtosis statistics of all constructs are examined. The skewness and kurtosis statistics, which are presented in Table 2, are all located in the range between -1 and +1, indicating that non-normality is not a serious problem (Byrne, 2012). Nonetheless, to be on the safe side, the MLR estimator was finally used. The use of MLR is verified in case the scaling correction factor (SCF) is greater than one (Bentler, 2005).

Table 2. Constructs and their properties

Constructs	Descriptive statistics		Consistency and reliability indices		Correlation coefficients			
	Means (standard deviations)	Skewness (Kurtosis)	Cronbach Alpha	Composite reliability	1	2	3	4
2020								
1. Adjustments due to COVID-19	2.490 (0.981)	0.470 {-0.309}	0.699	0.841	[0.641]			
2. Employee motivation	3.825 (0.888)	-0.818 {0.342}	0.908	0.942	-0.018	[0.844]		
3. Employee work engagement	3.792 (0.756)	-0.609 {0.052}	0.862	0.933	-0.029	0.504**	[0.791]	
4. Organisational performance	3.970 (0.759)	-0.784 {0.680}	0.868	0.920	-0.028	0.540**	0.507**	[0.793]
2021								
1. Adjustments due to COVID-19	3.623 (0.936)	-0.452 {-0.229}	0.724	0.853	[0.661]			
2. Employee motivation	3.641 (0.930)	-0.660 {-0.54}	0.907	0.942	-0.230**	[0.844]		
3. Employee work engagement	3.726 (0.755)	-0.545 {0.147}	0.865	0.919	-0.108**	0.507**	[0.791]	
4. Organisational performance	3.968 (0.750)	-0.756 {0.348}	0.872	0.922	-0.160**	0.526**	0.430**	[0.799]

Notes: ** $p < 0.01$, AVE in brackets []

Source: own elaboration

Consistency and validity of the survey instruments

Further to the descriptive statistics and the correlation coefficients of all constructs involved in estimation, which are presented in Table 2, consistency and reliability indices are also presented in this table. Internal consistency is supported for all constructs because their Cronbach's alphas are equal or larger than 0.70. The instrument construct validity is acceptable, because the values of the av-

erage variances extracted (AVE) of all constructs are larger than 0.50. Composite reliabilities of all constructs are acceptable, since all composite reliability (CR) scores exceed 0.70 and are very close to 0.90. Finally, the fact that all correlation coefficients are smaller than the square root of the relevant AVE supports the conclusion that the constructs are distinct and separate (Hair et al., 2010).

In evaluating the MCFA and MSEM results, the chi-square statistic, and in turn the

Comparative Fit Index (CFI), Tucker-Lewis Fit Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardised Root Mean Squared Residual (SRMR) indices [within and between] are used (Muthén and Muthén, 2017). For this evaluation, the recommendation of Bollen (1989) is followed, indicating that a model may be adequate for one fit index but inadequate for many oth-

ers. Under this recommendation, the MCFA fit indices presented in Table 3 support the premise that all the constructs used in the study are acceptable. Additionally, taking into consideration the fact that SCF is greater than one for all constructs in both years (except for 2021 Employee Work Engagement which is equal to 0.98), the use of MLR to address possible non-normality is verified.

Table 3. Multilevel CFA fit indices of constructs

	Adjustments due to COVID-19	Employee Motivation	Employee Work Engagement	Organisational Performance
2020				
Chi-squared	81.494	367.049	1477.531	50.553
d.f.	12	64	232	12
p	0.000	0.000	0.000	0.000
SCF	1.2964	1.154	1.2176	1.2663
Normed Chi-squared	6.791	5.735	6.369	4.213
RMSEA	0.056	0.050	0.054	0.042
CFI	0.951	0.967	0.903	0.984
TLI	0.878	0.954	0.886	0.959
SRMR [within]	0.031	0.027	0.043	0.015
SRMR [between]	0.077	0.076	0.106	0.074
2021				
Chi-squared	46.098	155.963	936.320	29.891
d.f.	12	64	232	12
p	0.000	0.000	0.000	0.003
SCF	1.3237	1.0694	0.9757	1.4740
Normed Chi-squared	3.841	3.610	4.036	2.491
RMSEA	0.061	0.044	0.064	0.045
CFI	0.959	0.981	0.910	0.987
TLI	0.897	0.974	0.895	0.967
SRMR [within]	0.038	0.022	0.049	0.021
SRMR [between]	0.054	0.037	0.129	0.036

Source: own elaboration

3. Results

The measurement models for 2020 and 2021

The fit indices from testing the complete measurement model for 2020 are as follows: Chi-squared = 211.465, d.f. = 96, $p = 0.000$, SCF = 1.2365, Normed Chi-squared = 2.203, RMSEA = 0.025, CFI = 0.986, TLI = 0.980, SRMR [within] = 0.026, SRMR [between] = 0.091. The fit indices from testing the less restrictive measurement model for 2020 are as follows: Chi-squared = 3203.847, d.f. = 106, $p = 0.000$, SCF = 1.1541, Normed Chi-squared = 30.225, RMSEA = 0.125, CFI = 0.612, TLI = 0.517, SRMR [within] = 0.096, SRMR [between] = 0.381. Comparing the two models, it is clear that the less restrictive model is much poorer than the complete model. This conclusion is reinforced by comparing the Chi-squares between the two models (i.e. $[\Delta\text{Chi-square} = 2992.382 / \Delta\text{df} = 10] = 299.24$), which are found to be much greater than the critical value of 3.84 per degree of freedom. Therefore, it is concluded that for 2020, common method bias is limited and the constructs used in estimation are distinct (Brown, 2015; Podsakoff et al., 2003).

Similarly, for 2021, the fit indices of testing the complete measurement model are as follows: Chi-squared = 171.885, d.f. = 96, $p = 0.000$, SCF = 1.1599, Normed Chi-squared = 1.790, RMSEA = 0.032, CFI = 0.979, TLI = 0.971, SRMR [within] = 0.034, SRMR [between] = 0.127. The fit indices from testing the less restrictive measurement model for 2021 are as follows: Chi-squared = 1654.858, d.f. = 106, $p = 0.000$, SCF = 0.9523, Normed Chi-squared = 15.612, RMSEA = 0.139, CFI = 0.573, TLI = 0.469, SRMR [within] = 0.105, SRMR [between] = 0.476. Comparing these two models, it is clear that the less restrictive model is much poorer than the complete model. This conclusion is reinforced by comparing the Chi-squares between the two models (i.e. $[\Delta\text{Chi-square} = 1482.973 / \Delta\text{df} = 10] = 148.30$), which are found to be much greater than the critical value of 3.84 per de-

gree of freedom. Therefore, it is concluded that, for 2021, common method bias is limited and the constructs used in estimation are distinct (Brown, 2015; Podsakoff et al., 2003).

The structural models for 2020 and 2021

In order to test the structural models for 2020 and 2021, two conceptual models have been estimated for each year. The first model is the fully mediating model (FMM), referring to the model presented in Figure 1. The second model is the partially mediating model (PMM), which includes significant direct links more than the partial mediating links presented in Figure 1. However, before estimating the FMM and the PMM, the intra-correlation coefficients ICC1 and ICC2 and the inter-rater agreement measures $r_{\text{wg}}(j)$ were examined to investigate whether multilevel analyses are justified (Kozlowski and Klein, 2000). In particular:

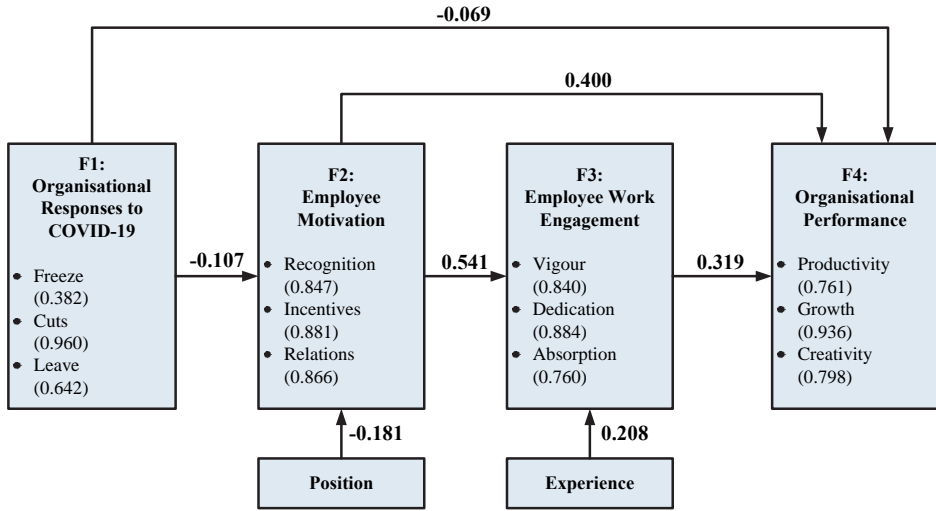
Starting with 2020, the values of ICC1, ranging between 0.110 (for productivity) and 0.224 (for leave), being larger than 0.10, indicate that there is sufficient between-unit variation to justify multilevel analysis. The values of ICC2, ranging between 0.650 (for productivity) and 0.832 (for cuts), being larger than 0.50, indicate that there is sufficient within-unit construct agreement to justify multilevel analysis. The values of $r_{\text{wg}}(j)$, ranging between 0.763 (for organisational responses to Covid-19) and 0.882 (for employee work engagement), being larger than 0.70, indicate that there is sufficient within-unit agreement to justify aggregation.

The fit indices of testing the FMM for 2020 are as follows: Chi-squared = 477.760, d.f. = 135, $p = 0.000$, SCF = 1.2193, Normed Chi-squared = 3.539, RMSEA = 0.037, CFI = 0.960, TLI = 0.951, SRMR [within] = 0.065, SRMR [between] = 0.099. The fit indices of testing the PMM for 2020 are as follows: Chi-squared = 299.534, d.f. = 133, $p = 0.000$, SCF = 1.2043, Normed Chi-squared = 2.252, RMSEA = 0.028, CFI = 0.981, TLI = 0.976, SRMR [within] = 0.031, SRMR [between]

= 0.099. Comparing these two models, it is possible to observe that the fit indices of the PMM are better than those of the FMM. This finding is also verified by considering change in the chi-squared values (i.e. $[\Delta\text{Chi-square} = 178.226 / \Delta\text{df} = 2] = 89.113$), which is much greater than the critical value of 3.84 per de-

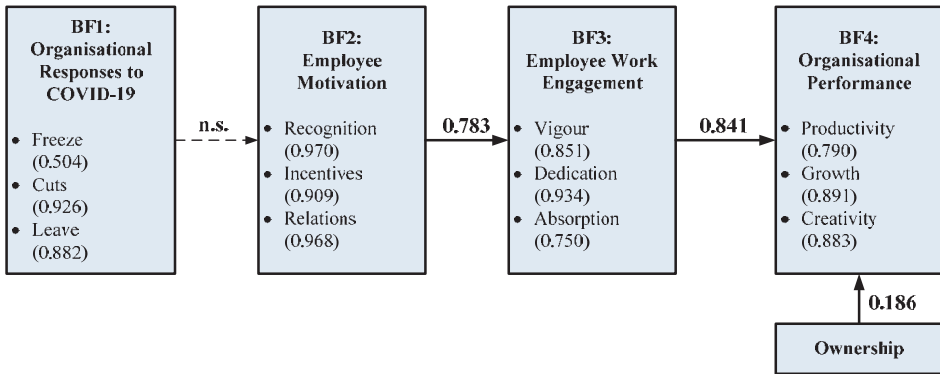
gree of freedom. Accordingly, in Figure 2(a) the within-employees estimation results of the PMM model for 2020 are presented, and in Figure 2(b) the between-organisations estimation results of the PMM model for 2020 are presented.

Figure 2(a). The within-employees estimation results of the model for 2020



Source: own elaboration

Figure 2(b). The between-organisations estimation results of the model for 2020



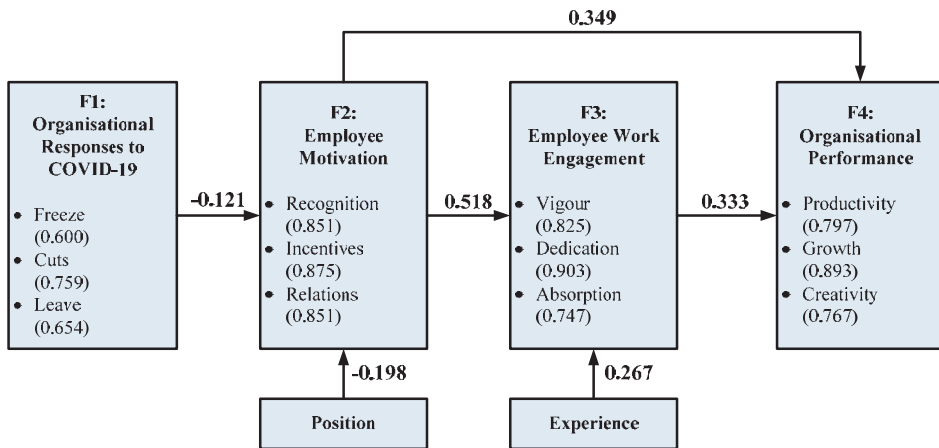
Source: own elaboration

Continuing to 2021, the values of ICC1, ranging between 0.133 (for dedication) and 0.322 (for freeze), being larger than 0.10, indicate that there is sufficient between-unit variation to justify multilevel analysis. The values of ICC2, ranging between 0.621 (for vigour) and 0.845 (for freeze), being larger than 0.50, indicate that there is sufficient within-unit construct agreement to justify multilevel analysis. The values of $r_{wg}(j)$, ranging between 0.794 (for organisational responses to Covid-19) and 0.884 (for performance), being larger than 0.70, indicate that there is sufficient within-unit agreement to justify aggregation.

The fit indices of testing the FMM for 2021 are as follows: Chi-squared = 311.113, d.f. = 135, $p = 0.000$, SCF = 1.0931, Normed Chi-squared = 2.305, RMSEA = 0.042, CFI = 0.955, TLI = 0.944, SRMR [within] = 0.064,

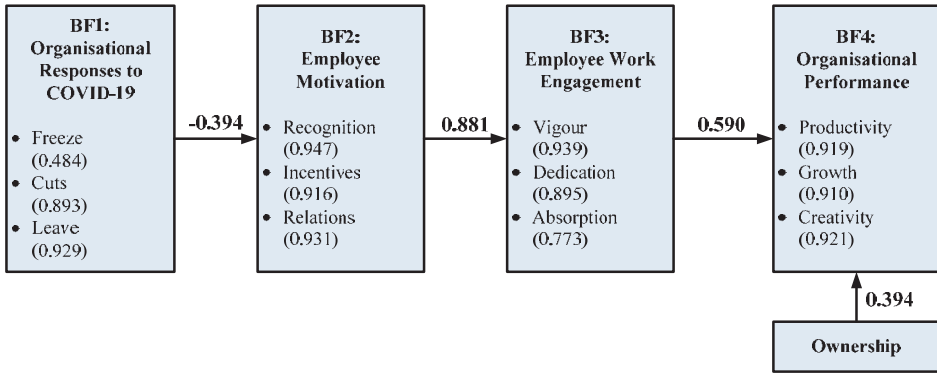
SRMR [between] = 0.164. The fit indices of testing the PMM for 2021 are as follows: Chi-squared = 259.215, d.f. = 134, $p = 0.000$, SCF = 1.0934, Normed Chi-squared = 1.934, RMSEA = 0.035, CFI = 0.968, TLI = 0.960, SRMR [within] = 0.043, SRMR [between] = 0.162. Comparing these two models, it is possible to observe that the fit indices of the PMM are better than those of the FMM. This finding is also verified by considering change in the chi-squared values (i.e. $\Delta\text{Chi-square} = 51.898 / \Delta\text{df} = 1 = 51.898$), which is much greater than the critical value of 3.84 per degree of freedom. Accordingly, in Figure 3(a) the within-employees estimation results of the PMM model for 2021 are presented, and in Figure 3(b) the between-organisations estimation results of the PMM model for 2021 are presented.

Figure 3(a). The within-employees estimation results of the model for 2021



Source: own elaboration

Figure 3(b). The between-organisations estimation results of the model for 2021



Source: own elaboration

Testing of hypotheses

In Figure 2(a) the within-employees results for 2020 are presented. From these results it is clear that organisational responses to COVID-19 (F1) negatively ($\beta = -0.107$) predict employees motivation (F2), supporting hypothesis 1. Employee motivation positively ($\beta = 0.541$) predicts employee work engagement (F3), supporting hypothesis 2. Employee work engagement positively ($\beta = 0.319$) predicts organisational performance (F4), supporting hypothesis 3.

In Figure 2(b) the between-organisations results for 2020 are presented. From these results, it is clear that organisational responses to Covid-19 (BF1) do not significantly predict employee motivation (BF2); hypothesis 1 is therefore not supported. Employee motivation positively ($\beta = 0.783$) predicts employee work engagement (BF3), supporting hypothesis 2. Employee work engagement positively ($\beta = 0.841$) predicts organisational performance (BF4), supporting hypothesis 3.

From Figures 2(a) and 2(b) for 2020, it is possible to discern that only position ($\beta = -0.181$), influencing employee motivation, experience ($\beta = 0.208$), influencing employee work engagement, and ownership ($\beta = 0.208$), influencing organisational performance, produced significant results. These

results mean that employee motivation weakens for lower-level employees, employee work engagement strengthens with more employee experience, and organisational performance is better for private organisations when compared with public organisations.

Furthermore, in Figure 3(a) the within-employees results for 2021 are presented. From these results it can be seen that organisational responses to COVID-19 negatively ($\beta = -0.121$) predict employee motivation, supporting hypothesis 1. Employee motivation positively ($\beta = 0.518$) predicts employee work engagement, supporting hypothesis 2. Employee work engagement positively ($\beta = 0.333$) predicts organisational performance, supporting hypothesis 3.

In Figure 3(b) the between-organisations results for 2021 are presented. From these results it can be seen that organisational responses to COVID-19 negatively ($\beta = -0.394$) predict employee motivation, supporting hypothesis 1. Employee motivation positively ($\beta = 0.881$) predicts employee work engagement, supporting hypothesis 2. Employee work engagement positively ($\beta = 0.590$) predicts organisational performance, supporting hypothesis 3.

From Figures 3(a) and 3(b) for 2021, it is clear that only position ($\beta = -0.198$), in-

fluencing employee motivation, experience ($\beta = 0.267$), influencing employee work engagement, and ownership ($\beta = 0.394$), influencing organisational performance, produced significant results. The meaning of these results is similar to the results produced for 2020.

Comparing the results presented in Figure 2(a) with those in Figure 3(a), it is possible to observe that for 2020 the mechanism between employee motivation and employee work engagement partially mediates the relationship between organisational responses to COVID-19 and organisational performance, whilst for 2021 this mechanism fully mediates the relationship between organisational responses to Covid-19 and organisational performance. In particular, for 2020, the effects are as follows: direct (F1-F4) = -0.069, $p = 0.008$; specific indirect (F1-F2-F4) = -0.043, $p = 0.004$ and (F1-F2-F3-F4) = -0.018, $p = 0.005$. In summary, the total effect = -0.130, $p = 0.000$. For 2021, the results are as follows: specific indirect (F1-F2-F4) = -0.042, $p = 0.046$ and (F1-F2-F3-F4) = -0.021, $p = 0.039$. In summary, the total effect = -0.063, $p = 0.034$. Comparing the total effects between 2020 and 2021, it is found that the decrease in organisational performance due to COVID-19 was stronger in 2020 than in 2021, at a significant level $p = 0.073$. This finding supports the premise that in 2020 - the first year of the COVID-19 pandemic - the shock was possibly stronger at that time compared to 2021 where organisations were trying to find their equilibrium.

In terms of the mediating mechanism of employee work engagement in the relationship between employee motivation and organisational performance, Figures 2(a) and 3(a) show that this mechanism is partial in both 2020 and 2021. On the contrary, Figures 2(b) and 3(b) show that this mechanism is full. In particular, for 2020, the effects are as follows: from within-employees, direct (F2-F4) = 0.400, $p = 0.000$ and specif-

ic indirect (F2-F3-F4) = 0.172, $p = 0.000$. In summary, the total effect = 0.572, $p = 0.000$. From between-organisations, specific indirect (BF2-BF3-BF4) = 0.658, $p = 0.000$, which is also the total effect. For 2021, the effects are as follows: from within-employees, direct (F2-F4) = 0.349, $p = 0.000$ and specific indirect (F2-F3-F4) = 0.172, $p = 0.000$. In summary, the total effect = 0.522, $p = 0.000$. From between-organisations, specific indirect (BF2-BF3-BF4) = 0.520, $p = 0.000$, which is also the total effect. Comparing the within-employees total effects between 2020 and 2021, it is found that the impacts of employee motivation on organisational performance are statistically equal, at a significant level $p = 0.167$. Comparing the between-organisations total effects between 2020 and 2021, it is found that the impacts of employee motivation on organisational performance are statistically equal, at a significant level $p = 0.311$. These findings mean that the structure of the mediating mechanism of employee work engagement in the relationship between employee motivation and organisational performance remains the same irrespective of the waves of the Covid-19 pandemic.

4. Discussion

Theoretical contributions

The COVID-19 pandemic, being exogenous in its nature, appears to share many characteristics of other crises seen in the past, such as the economic and financial crisis of 2008 (Krammer, 2021). However, in understanding how crises affect organisational survival, it is necessary to examine the effects of the related organisational responses on organisational performance. Accordingly, this study reveals four contributions to the literature on crises.

Firstly, it dynamically traces the effects of the COVID-19 pandemic on organisational performance, employing a research framework that has been conceptually de-

veloped and empirically tested over the first two years of the crisis. The method used is a quasi-longitudinal and multilevel structural equation modelling approach that is applied step-by-step to avoid biased results in testing the phenomenon under study.

Secondly, it utilises a new construct that reflects the organisational responses to COVID-19, which is used by most organisations. This construct is measured in the three dimensions of recruitment and salary increments freezes, salary and bonus cuts, and voluntary and mandatory unpaid leave. The philosophy behind this construct constitutes the initiating factor on which the organisations focus on their effort to adapt to the crisis.

Thirdly, it utilises the well-known mediating mechanism of employee work engagement in the relationship between employee motivation and organisational performance. I consider it important to test the stability of this mediating mechanism during the COVID-19 crisis. Indeed, I regard the finding that the structure, but not the level, of this mediating mechanism is stable despite the waves of the COVID-19 pandemic interesting.

Finally, by treating organisational responses to COVID-19 as a new business model, this paper enlightens the respective literature, supporting the idea that after the initial shock organisations have tried to adapt to their new environment. I consider this contribution important because it supports the theory that organisational responses to COVID-19 constitute the driving thermostat of the working level of the mediating mechanism, which aims to return organisational performance to its initial equilibrium.

Practical implications

This research has revealed three important findings. The first is that there is a positive serially mediating relationship between employee motivation, employee work en-

gagement and organisational performance. The second is that organisational responses to COVID-19 constitute the driver of this relationship, which determines the working level of the serially mediating relationship between employee motivation, employee work engagement and organisational performance. The third is that the working level of this relationship depends on the degree of fear and uncertainty that employees develop with respect to organisational responses to COVID-19. Thus, with fear and uncertainty being the source of evil, the practical recommendations to organisations must focus on how to weaken the level of fear and uncertainty among employees. This can be achieved through the following approaches (Bailey and Breslin, 2021). First, the organisation must improve its ability to respond to external threats, such as COVID-19. This can be achieved by organisations developing adaptive business models through rapid innovation (Linnenluecke, 2017). Second, authentic leadership is particularly appropriate during crises (Iszatt-White and Kempster, 2019). Authentic leadership refers to a leader whose behaviour is ethical and transparent, and who shares information with employees in the decision-making process (George et al., 2007). Third, organisations should build trust, interaction and communication among employees. Interpersonal communication, whether virtual or not, improves trust and collaboration among employees in crisis periods (Zimmermann, 2011). Fourth, organisations should attempt to safeguard the well-being of employees both during and after the COVID-19 pandemic (Bailey and Breslin, 2021). This can be achieved by applying appropriate human resource management policies and practices (Van De Voorde et al., 2011).

Limitations and future research

Taking into consideration the fact that the characteristics of the COVID-19 pandemic have changed so often during the last two

years, the investigation of their effects on organisations is a difficult task. Thus, the findings of this study should be considered with care, since the study may have a number of limitations. First, the study is based on cross-sectional data, making it difficult to support inferences of causal relationships between variables. Thus, future research should focus on preparing a dynamic questionnaire that will involve dynamic cause-and-effect relationships. Second, the data in this study have been collected using many respondents at different hierarchical levels. However, considering the fact that all variables were self-reported, the survey may have produced problems of common method bias. Although tests for detecting the level of common method bias and multilevel structural equation modelling estimation methods that minimise the common method bias were used in the analysis (Lai et al., 2013), these approaches may not have eliminated the cause of such bias. In terms of future research, in order to minimise common method bias problems, independent sources of collecting data should be employed. Third, although a quasi-longitudinal and multilevel methodology has been used in this study to compare relationships between different time periods, this approach may not have minimised any problems of dynamic inferences. Thus, future research should focus on pure longitudinal approaches under an integrated research framework. Fourth, the distribution of organisations in terms of size and sector differed between 2020 and 2021 due to the difficulty in collecting data during the COVID-19 pandemic. Therefore, future research should follow an anchoring approach to use the same organisations and employees in similar studies.

Conclusions

This study investigates the effect of organisational responses to COVID-19 on organisational performance, through the serially me-

diating mechanism of employee motivation and employee work engagement. The major finding is that after the first shock of the COVID-19 pandemic, which has paralysed the motivation of employees due to fear and uncertainty, and in turn weakened employee work engagement and organisational performance, the entire process has showed indications of returning to the initial pre-COVID-19 equilibrium.

References

- ACCA (2020), Covid-19 global survey: Inside business impacts and responses, London: Association of Chartered Certified Accountants.
- Albrecht, S.L., Bakker, A.B., Gruman, J.A., Macey, W.H., Saks, A.M. (2015), Employee engagement, human resource management practices and competitive advantage: An integrated approach, *Journal of Organizational Effectiveness: People and Performance*, 2(1), 7-35. <https://doi.org/10.1108/JOEPP-08-2014-0042>
- Alvarez, F.E., Argente, D., Lippi, F. (2020), A simple planning problem for Covid-19 lockdown (No. W26981), National Bureau of Economic Research.
- Amabile, T.M., Conti, R. (1999), Changes in the work environment for creativity during downsizing, *The Academy of Management Journal*, 42(6), 630-640. <https://doi.org/10.2307/256984>.
- Bailey, K., Breslin, D. (2021), The COVID-19 pandemic: What can we learn from past research in organizations and management? *International Journal of Management Reviews*, 23(1), 3-6. <https://doi.org/10.1111/ijmr.12237>
- Bakker, L., Albrecht, S.L. (2018), Work engagement current trends, *Career Development International*, 23(1), 4-11. <https://doi.org/10.1108/CDI-11-2017-0207>
- Bakker, A.B., Demerouti, E. (2008), Towards a model of work engagement, *Career Development International*, 13(3), 209-223. <https://doi.org/10.1108/13620430810870476>

- Bentler, P.M. (2005), EQS 6 structural equations program manual, Encino, CA: Multivariate Software.
- Bollen, K.A. (1989), *Structural equations with latent variables*, New York: Wiley.
- Brown, T.A. (2015), *Confirmatory factor analysis for applied research*, London: The Guilford Press.
- Byrne, B.M. (2012), *Structural equation modeling with Mplus: Basic concepts, applications, and programming*, New York: Routledge.
- CIPD (2021), *Employee engagement and motivation*, London: Chartered Institute of Personnel and Development.
- Couch, D.L., O'Sullivan B., Matatzky, C. (2020), What COVID-19 could mean for the future of work from home: The provocations of three women in the academy, *Gender, Work and Organization*, 28(S1), 266-275. <https://doi.org/10.1111/gwao.12548>
- Delaney, J.T., Huselid, M.A. (1996), The impact of human resource management practices on perceptions of organisational performance, *Academy of Management Journal*, 39(4), 949-69. DOI: 10.2307/256718
- Dyer, L., Reeves, T. (1995), Human resource strategies and firm performance: what do we know and where do we need to go?, *International Journal of Human Resource Management*, 6(3), 656-670. <https://doi.org/10.1080/09585199500000041>
- European Commission (2021), Next generation EU, retrieved from: https://ec.europa.eu/commission/presscorner/detail/en/IP_21_4068 (assessed 13 September 2021).
- George, B., Sims, P., McLean, A.N., Mayer, D. (2007), Discovering your authentic leadership, *Harvard Business Review*, 85(2), 129-138.
- Gerhart, B., Wright, P.M., McMahan, G.C., Snell, S.A. (2000), Measurement error in research on human resources and firm performance: How much error is there and how does it influence effect size estimates?, *Personnel Psychology*, 53(4), 803-834. <https://doi.org/10.1111/j.1744-6570.2000.tb02418.x>
- Guest, D.E. (2001), Human resource management: When research confronts theory, *International Journal of Human Resource Management*, 12(7), 1092-1106. <https://doi.org/10.1080/09585190110067837>
- Hair, F., Anderson, R., Tatham, R., Black, W. (2010), *Multivariate data analysis with readings*, Hoboken, New Jersey: Prentice-Hall.
- Iszatt-White, M., Kempster, S. (2019), Authentic leadership: Getting back to the roots of the 'root construct'?, *International Journal of Management Reviews*, 21(3), 356-369. <https://doi.org/10.1111/ijmr.12193>
- Ivancevich, J.M., Konopaske, R., Matteson, M.T. (2005), *Organizational behavior and management (7th edition)*, New York: McGraw-Hill.
- Katou, A.A. (2018), Examining the impact of employee core self-evaluations and organisational trust on work engagement, *Forum Scientiae Oeconomia*, 6(3), 83-100. DOI: 10.23762/FSO_VOL6_NO3_6.
- Katou, A.A., Budhwar, P.S., Patel, C. (2014), Content vs. process in the HRM-performance relationship: An empirical examination, *Human Resource Management*, 53(4), 527-544. <https://doi.org/10.1002/hrm.21606>
- Koszela, A. (2020), The influence of staff turnover on work motivation and job performance of employees in IT sector: The results of empirical research, *Forum Scientiae Oeconomia*, 8(1), 29-48. DOI: 10.23762/FSO_VOL_8_NO1_3.
- Kozłowski, S.W., Klein, K.J. (2000), A multilevel approach to theory and research in organizations: contextual, temporal, and emergent processes. In K.J. Klein and S.W.J. Kozłowski (Eds.) *Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions*, San Francisco CA: Jossey-Bass (pp. 3-90).
- Krammer, S.M.S. (2021), Navigating the New Normal: Which firms have adapted better to the COVID-19 disruption? *Technovation*. doi.org/10.1016/j.technovation.2021.102368

- Lai, X., Li, F., Leung, K. (2013), A Monte Carlo study of the effects of common method variance on significance testing and parameter bias in hierarchical linear modeling, *Organizational Research Methods*, 16(2), 243–269. <https://doi.org/10.1177/1094428112469667>.
- Linnenluecke, M.K. (2017), Resilience in business and management research: A review of influential publications and a research agenda, *International Journal of Management Reviews*, 19(1), 4–30. <https://doi.org/10.1111/ijmr.12076>
- Lockwood, N.R. (2010), *Motivation in Today's Workplace: The Link to Performance*. Research Quarterly, Berea, OH: Society for Human Resource Management.
- MacLeod, D., Clarke, N. (2009), *Engaging for Success: Enhancing performance through employee engagement*, Surrey: A report to Government.
- Muthen, L.K., Muthen, B.O. (2017), *Mplus computer software*, Los Angeles, CA: Muthen and Muthen.
- Phillips, J.J. (1996), *Accountability in human resource management*, Houston, TX: Gulf Publishing Company.
- Pinder, C.C., Harlos, K.P. (2001), Employee silence: Quiescence and acquiescence as responses to perceived injustice, *Research in Personnel and Human Resources Management*, 20, 331–369. [https://doi.org/10.1016/S0742-7301\(01\)20007-3](https://doi.org/10.1016/S0742-7301(01)20007-3)
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., Podsakoff, N. P. (2003), Common method biases in behavioural research: A critical review of the literature and recommended remedies, *Journal of Applied Psychology*, 88(5), 879–903. DOI: 10.1037/0021-9010.88.5.879
- Richardson, R., Thompson, M. (1999), *The Impact of people management practices on business performance: A literature review*, London: IPD.
- Rogers, E.W., Wright, P.M. (1998), Measuring organizational performance in strategic human resource management: problems, prospects, and performance information markets, *Human Resource Management Review*, 8(3), 311–331. [https://doi.org/10.1016/S1053-4822\(98\)90007-9](https://doi.org/10.1016/S1053-4822(98)90007-9)
- Saks, A.M., Gruman, J.A. (2017), Human resource management practices and employee engagement, in: P. Sparrow, C.L. Cooper (Eds), *A Research Agenda for Human Resource Management* (pp. 95–113), Cheltenham: Edward Elgar.
- Schaufeli, W.B., Salanova, M. (2007), Efficacy or inefficacy, that's the question: Burnout and work engagement, and their relationships with efficacy beliefs, Anxiety, Stress, and Coping, 20(2), 177–196. DOI: 10.1080/10615800701217878
- Schaufeli, W.B., Salanova, M., Gonzalez-Roma, V., Bakker, A.B. (2002), The measurement of engagement and burnout: A two sample confirmatory factor analytic approach, *Journal of Happiness Studies*, 3(1), 71–92. <https://doi.org/10.1023/A:1015630930326>
- Staw, B.M., Sandelands, L.E., Dutton, D.E. (1981), Threat-rigidity effects in organizational behavior: A multilevel analysis, *Administrative Science Quarterly*, 26(4), 501–524. <https://doi.org/10.2307/2392337>
- Van De Voorde, K., Paauwe, J., Van Veldhoven, M. (2012), Employee well-being and the HRM–organizational performance relationship: A review of quantitative studies, *International Journal of Management Reviews*, 14(4), 391–407. <https://doi.org/10.1111/j.1468-2370.2011.00322.x>
- Young, J., Gifford, J. (2021), *Employee engagement: An evidence review. Scientific summary*. London: Chartered Institute of Personnel and Development.
- Wynen, J., Kleizen, B., Verhoest, K., Lægheid, P., Rolland V. (2020), Just keep silent... Defensive silence as a reaction to successive structural reforms, *Public Management Review*, 22(4), 498–526. <https://doi.org/10.1080/14719037.2019.1588358>
- Zimmermann, A. (2011), Interpersonal relationships in transnational, virtual teams: Towards a configurational perspective, *International Journal of Management Reviews*, 13(1), 59–78. <https://doi.org/10.1111/j.1468-2370.2010.00284.x>

Anastasia A. Katou is an Associate Professor of Organisational Strategy at the Department of Business Administration, University of Macedonia, Thessaloniki, Greece. Her research interests include human resource management, organisational behaviour, and business strategies, with a focus on organisational performance. She received a BA and an MBA from the University of Sunderland, U.K., and a PhD and a PgDip from the Cardiff University, Wales, U.K. She has published numerous articles in leading academic journals, including the *Journal of World Business*, *Human Resource Management*, *Human Resource Management Journal*, *International Journal of Human Resource Management*, *Journal of Business Research*, *Human Resource Management Review*, and *European Management Review*.