

EMPIRICAL ARTICLE

Telework Performance in Fragile States: Examining the Roles of Job Demands, Resources, and Leadership

Najib Ghrayche¹ | Javier Alfonso Rodriguez-Escobar² | Raphael Lissillour³ | Shamila Ramjawan⁴

¹DBA graduate, IPAG Business School, Paris, France

²Department of Social Science, UEMC, Valladolid, Spain.

³Associate professor, IPAG Business School, Paris, France

⁴Lecturer, CamEd Business School, Phnom Penh, Cambodia

Correspondence

Corresponding author Najib Ghrayche.

Email: najib.ghr@hotmail.com

Abstract

Purpose - This study examines how internal and external job resources, job demands, and leadership styles affect telework performance in fragile-state contexts. Based on the Job Demands-Resources (JD-R) model, the research investigates the direct impacts of teleworking conditions and the moderating influence of transformational and transactional leadership.

Design/Methodology/Approach - A survey was conducted among 310 employees in the private sector in Lebanon, a fragile-state context marked by infrastructural challenges. Hypotheses were examined by regression and moderated mediation analyses using the PROCESS macro version 3.3 in SPSS version 24 software.

Findings - Both internal and external job resources, as well as job demands, have significant positive effects on telework performance. Leadership styles did not significantly moderate the relationship between internal job resources and telework performance. However, transformational leadership negatively moderates the relationship between external resources and performance and between job demands and performance. Transactional leadership has a positive moderating effect on the external resource-performance relationship. Control variables such as gender and marital status showed limited or marginal influence.

Originality/Value - This study extends the JD-R model to telework environments in fragile-state contexts, highlighting the differentiated impact of leadership styles on resource-performance dynamics. The findings underscore the importance of tailoring leadership approaches to the resource environment and institutional conditions.

KEYWORDS

Telework performance, Job Demands-Resources model, Transformational leadership, Transactional leadership, Fragile states.

1 | INTRODUCTION

Over the past three decades, technological advancements have reshaped the nature of work, transforming how tasks are executed, how organizations are structured, and how human interaction occurs within

professional settings (McKinsey & Company 2021). The widespread diffusion of the internet, mobile telecommunications, and cloud-based services has enabled remote work to become increasingly viable and mainstream (Solis 2016, Turkes and Vuta 2022). Although teleworking has existed for many years, its strategic use remained marginal, often viewed as a contingency option reserved for emergencies or limited to specific sectors (Turkes and Vuta 2022).

The onset of the COVID-19 pandemic in 2020 radically altered this perception, compelling most organizations to transition almost overnight to full-scale telework in order to maintain continuity and avoid operational shutdowns (Forum 2022, Trembley and Mathieu

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2020). This transition occurred with minimal preparation, generating both organizational strain and managerial uncertainty (Turkes and Vuta 2022). The implementation of teleworking in such conditions represented not merely a technological shift but a disruption of established managerial practices and work cultures (Trembley and Mathieu 2020). In this regard, success depended not only on access to technological tools such as internet connectivity, IT equipment, and cloud storage, but also on leadership capabilities in directing, motivating, and evaluating employees remotely (Kim et al. 2021).

Despite the growing body of literature that investigates telework performance and effectiveness (e.g., (Trembley and Mathieu 2020, Taskin et al. 2024)), these empirical studies concentrate on stable and technologically advanced contexts. However, in fragile-state settings, where infrastructure and governance systems are often weak or unreliable, these challenges are further compounded. Thus, there remains a substantial research gap in understanding how telework operates in fragile states where political instability, institutional fragility, and infrastructural decay disrupt assumptions underlying traditional telework models.

In such an environment, unreliable electricity supply, poor internet quality, and limited access to digital tools significantly constrain the effectiveness of teleworking by creating barriers to communication, file sharing, and real-time collaboration (Solis 2016). Therefore, leaders are obliged to implement strategies to overcome these limitations; for example, investing in offline-compatible tools, providing mobile data support, and adopting work methods that can help bridge digital gaps. In addition, leaders must be actively engaged in setting realistic and attainable goals, promoting digital literacy, and cultivating a culture of trust and accountability in the absence of physical presence (Carillo et al. 2021).

Leadership in a teleworking environment within a fragile state is further complicated by broader issues of governance and institutional trust. As Brinkerhoff (2005) states, for teleworking to succeed, leaders must build integrity by ensuring transparency, access to resources, and openness to staff needs and concerns. As Salvi et al. (2024) noted, entrepreneurial activities in fragile states are shaped by local circumstances, often requiring creative and adaptive approaches. Hence, effective leadership in these contexts involves a willingness to learn from employees to better tailor telework to cultural and logistical realities.

This study addressed a blind spot in telework research by exploring how leaders facilitate telework performance specifically in fragile or failed states—contexts where the organizational environment is shaped less by technological capacity than by political fragility, infrastructural decay, and institutional complexity. This study adopts the JD–R model to examine how internal and external job resources, job demands, and leadership styles influence employee performance in teleworking contexts. By integrating both structural (e.g., internet access, workspace) and psychological (e.g., autonomy, resilience) job resources, and examining their interaction with leadership, we provide a comprehensive understanding of telework effectiveness.

Hence, this study seeks to answer the following research question: *How do job demands, resources, and leadership styles influence telework performance in a fragile-state context?*

To answer this question, data was collected in Lebanon, which is listed as a fragile state (The Fund for Peace 2024). In this country, despite widespread institutional deterioration, including frequent power cuts, weak internet infrastructure, and limited banking access (Syagha 2021, Bank 2022), telework became widely adopted during the COVID-19 pandemic (Abi-Aad-Attieh 2022). This paradox presents a unique empirical opportunity to explore how leadership styles influence telework performance under extreme constraints.

This study contributes to the literature by addressing a critical gap in understanding how job characteristics and leadership styles interact to influence telework performance in fragile-state contexts. While the JD–R model has been widely applied in organizational research, its relevance to remote work in environments marked by institutional instability, infrastructural limitations, and socio-political complexity has received limited attention. By applying and testing the JD–R model in a fragile-state setting, this study offers new theoretical insights into the boundary conditions of the model and highlights the need to consider contextual variables such as national fragility and remote work dynamics.

Practically, the findings inform leadership development and human resource strategies by showing how transformational and transactional leadership styles differentially influence the effects of job characteristics on employee performance. The study also advances indigenous scholarship (Rodriguez-Escobar 2024) by anchoring analysis in locally grounded realities, providing a model for future research in underrepresented contexts.

This article is organized into four key sections to address the research objectives. The first presents the theoretical framework drawing from leadership theory and the JD–R model, leading to hypothesis formulation. The second outlines the methodology used. The third section presents the findings and their interpretation. The fifth section provides a discussion of the results. The final section summarizes the conclusions and provides practical recommendations and avenues for future research.

2 | THEORETICAL FRAMEWORK: LEADING TELEWORK IN FRAGILE STATES

2.1 | Working and Leading in a Fragile State Environment

The shift to teleworking, accelerated by global crises such as the COVID-19 pandemic, has exposed stark differences in employees' access to job resources—especially in fragile-state contexts where infrastructure, digital support, and managerial guidance are often lacking. The Fragile States Index (FSI), developed by the Fund for Peace and published

annually by *Foreign Policy*, systematically ranks countries based on indicators such as security, political stability, public service capacity, and human rights (The Fund for Peace 2024). States that score high on this index, such as Somalia, South Sudan, Yemen, and the Democratic Republic of the Congo, present contexts where the state is unable or unwilling to provide basic governance, and where non-state actors, aid organizations, or private firms often fill the void (Patrick 2011).

In fragile states, telework is not merely a matter of organizational choice or digital readiness—it becomes entangled with broader political and economic dynamics marked by infrastructural unreliability, limited state support, and heightened personal risks. These contexts pose unique challenges and open new avenues for management research in at least four ways: the infrastructure fragility and digital divide, legitimacy and informal governance, adaptive and distributed leadership, and trust and psychological safety in remote teams (Salvi et al. 2024).

In fragile environments, structural impediments such as inconsistent electricity supply, poor internet quality, and limited access to digital tools constrain both the feasibility and effectiveness of teleworking (Dwivedi et al. 2020). These conditions highlight the inadequacy of conventional technology acceptance models and necessitate their reformulation to include resource scarcity and infrastructural insecurity (Venkatesh et al. 2016). At the institutional level, the absence of regulatory clarity and formal authority leads organizations to rely on informal governance mechanisms, traditional leadership structures, or international actors for legitimacy and operational direction (Khanna and Palepu 2010, Mair et al. 2012). Such scenarios challenge classical understandings of organizational stability and managerial control.

While the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) emphasize the role of enabling conditions such as technical infrastructure and organizational support in technology implementation, these models usually assume a stable environment (Venkatesh et al. 2016, ?). In fragile states, enabling conditions are constrained by unreliable electricity, poor internet connectivity, and weak institutional capacity. As a result, the assumptions underlying TAM and UTAUT must be critically reconsidered.

In terms of leadership, fragile states demand models that move beyond hierarchical control. Leadership approaches that promote decentralized authority, local empowerment, and contextual responsiveness are increasingly regarded as essential in volatile settings (Bolden 2011, Heifetz and Linsky 2002). Adaptive and distributed leadership styles are especially suited to environments characterized by unpredictability, where resilience and collective engagement become central to organizational survival (Baran and Woznyj 2020). Furthermore, fragile contexts intensify psychosocial challenges such as isolation, mistrust, and anxiety, making trust-building and psychological safety fundamental to successful remote team management (Bartsch et al. 2020, Edmondson and Lei 2014).

Working and leading in a fragile state may require a different set of skills and considerations, particularly in environments characterized by weak institutions and governance, poor rule of law, and insecurity—all of

which pose considerable challenges to leadership (OECD 2018). Leaders operating in such contexts must be prepared to work through instability, uncertainty, and structural dysfunction. Fragile states often lack the administrative tools necessary to deliver effective services, placing additional burdens on leaders to act in highly unstable environments (Bank 2011).

Economically, fragile states face challenges in attracting foreign direct investment (FDI), which can hinder the development of digital infrastructure. Dimitrova and Triki (2018) found that fragile states discourage investor confidence, which delays progress in sectors such as telecommunications. In such settings, telework leadership demands a high level of emotional intelligence and interpersonal skills. In the absence of face-to-face communication, caring leadership and participatory decision-making become more important; thus, leaders must align their teleworking policies with the realities of the state's political and infrastructural situation (McGuire et al. 2021).

Finally, although teleworking in fragile states faces significant obstacles, it is still achievable. Effective leadership requires recognition of infrastructural and social setbacks while fostering innovation, trust, and adaptability—conditions under which teleworking can contribute meaningfully even in the most challenging environments.

2.2 | The Job Demands–Resources Model

The JD–R model is a widely used theoretical framework in organizational psychology that explains how different job characteristics influence employee well-being and performance (Bakker and Demerouti 2007 2017). The model classifies all job characteristics into two broad categories: *job demands* and *job resources*. These categories interact to shape motivation, stress, and performance outcomes in both traditional and non-traditional work environments, including remote and hybrid work settings.

Job demands refer to physical, psychological, social, or organizational aspects of the job that require sustained effort and are associated with certain physiological or psychological costs (Demerouti et al. 2001). Common examples include workload, time pressure, emotional strain, and task complexity. While high job demands can lead to exhaustion and burnout, some types of demands—particularly challenge demands like responsibility and learning opportunities—can have motivational value and stimulate performance when appropriately supported (Crawford et al. 2010).

Job resources, in contrast, are aspects of the job that help in achieving work goals, reduce job demands and the associated costs, and stimulate personal growth and development. These include both *external resources*, such as access to technology, adequate workspace, and managerial support, and *internal resources*, such as autonomy, feedback, and opportunities for personal development (Bakker and Demerouti 2007, Xanthopoulou et al. 2007).

The JD–R model postulates two core psychological processes: a *health impairment process*, where excessive job demands drain energy and lead to strain, and a *motivational process*, whereby job resources

enhance engagement and performance (Bakker and Demerouti 2017). This dual pathway makes the model especially useful for analyzing work conditions under crisis or transformation, such as the transition to telework during the COVID-19 pandemic (Bilotta et al. 2021). Recent applications of the JD–R model to remote work contexts have shown that resource availability plays a critical role in buffering the adverse effects of telework-related stressors (Wang et al. 2020). For example, access to reliable internet and electricity can mitigate technostress and enable continuity in work tasks, while feedback and autonomy support intrinsic motivation and adaptability. The model also accommodates contextual moderators, such as leadership style, which can shape the effectiveness of job resources and influence how demands are perceived and managed (Breevaart et al. 2013).

Given its flexibility and empirical robustness, the JD–R framework offers a powerful lens through which to analyze the interplay of demands, resources, and leadership in shaping telework outcomes. It forms the theoretical backbone of this study.

2.3 | Hypothesis Development and Research Model

The Impact of Job Resources on Telework Performance in Fragile States

In the JD–R model, job resources are not limited to external or environmental supports; they also include internal psychological and cognitive resources that help individuals cope with job demands and enhance motivation (Bakker and Demerouti 2007). In remote work settings—particularly under fragile or uncertain conditions—these *internal job resources* become indispensable for sustaining performance. Internal resources typically include personal resilience, self-efficacy, time management skills, and emotional regulation. These factors enable employees to remain focused, adapt to unstructured environments, and persist through challenges without constant supervision or external validation (Molino et al. 2020).

In fragile contexts like Lebanon, where teleworkers may experience inconsistent electricity, poor internet, and social instability, internal resources compensate for the absence of institutional or infrastructural support. Moreover, *psychological capital*—comprising hope, optimism, and resilience—has been empirically shown to enhance job satisfaction, engagement, and performance (Molino et al. 2020). Employees with higher levels of self-regulation and adaptability are better equipped to manage their schedules, solve problems independently, and maintain a sense of purpose in virtual settings, thereby improving telework performance.

Telework performance refers to the extent to which employees attain desired work outcomes in remote settings, influenced by both job-related factors and managerial practices (Allen et al. 2015). This study focuses on telework performance rather than general employee well-being, as it aligns more directly with our investigation of productivity, efficiency, and task completion in remote workplaces.

Self-determination theory (Deci and Ryan 2000) also highlights how internal factors such as autonomy, competence, and relatedness drive intrinsic motivation, which is a key predictor of sustained high performance in remote work. These internal drivers are particularly salient when external structures are weak or absent, making them central to employee effectiveness under telework conditions.

Given these considerations, we propose the following hypothesis:

H1: Internal job resources have a positive effect on telework performance.

The Impact of External Job Resources on Telework Performance in Fragile States

The JD–R model (Bakker and Demerouti 2007) posits that job resources are functional in achieving work goals, reducing job demands, and stimulating personal growth. In the context of teleworking, *external job resources*—such as access to high-speed internet, reliable electricity supply, and work-related digital tools—are fundamental enablers of task completion (Wang et al. 2020). These resources allow teleworkers to sustain communication, maintain workflow continuity, and engage in collaborative tasks with minimal disruption (Allen et al. 2015).

External job resources become especially crucial in fragile state contexts—such as Lebanon—where infrastructure is often weak and inconsistent. In such environments, employees must rely heavily on whatever technical and spatial resources are available to navigate the uncertainties of remote work (Bartsch et al. 2020). The lack of these resources can create technological frustration, delay task execution, and lower morale (Gajendran and Harrison 2007). Conversely, stable internet connectivity, sufficient electricity, and available software support allow employees to remain engaged and productive, even in unpredictable work environments (Sardeshmukh et al. 2012).

Moreover, these external resources serve as motivational mechanisms that support autonomy and task focus. They reduce unnecessary cognitive load and allow employees to concentrate on creative and strategic tasks, which in turn enhances performance (Schaufeli and Taris 2014).

H2: External job resources have a significant impact on telework performance.

2.4 | Job Demands and Telework Performance

Job demands refer to the physical, psychological, or organizational aspects of a job that require sustained effort and are typically associated with certain physiological or psychological costs (Bakker and Demerouti 2007). In the telework context, job demands often include role overload, blurred work-life boundaries, family distractions, and the psychological weight of isolation (Gajendran and Harrison 2007, Molino et al. 2020).

While traditionally viewed as stressors that increase burnout risk, the JD-R model and subsequent research distinguish between *hindrance demands* (e.g., bureaucracy) and *challenge demands* (e.g., workload and responsibility), the latter of which can actually enhance engagement and performance (Crawford et al. 2010). In contexts marked by adversity—such as fragile states—employees often respond to increased job demands with heightened resilience and adaptability.

According to self-determination theory, when employees perceive demands as meaningful and surmountable, they may experience enhanced intrinsic motivation (Deci and Ryan 2000). Additionally, some empirical studies suggest that job demands during teleworking can foster innovation, time management, and problem-solving skills (Sardeshmukh et al. 2012, Wang et al. 2023), provided that individuals have the autonomy to manage their work environments.

Therefore, even though job demands typically carry a cost, they can also stimulate performance under certain motivational climates or organizational cultures. Based on this perspective:

H3: Job demands have a positive effect on telework performance.

2.5 | The Role of Leadership in Shaping Telework Outcomes in Fragile Contexts

Leadership style plays a critical role in shaping the influence of job resources and demands on telework performance, particularly in fragile-state contexts where environmental constraints and limited infrastructure heighten the need for effective managerial support (Bartsch et al. 2020, Edmondson and Lei 2014). Managerial leadership style directly influences motivation, cohesion, and productivity, especially where resource availability is minimal and traditional oversight is disrupted (Brunia et al. 2016, Aydin 2018). Managing human capital in remote settings requires not only technical competence but also emotional intelligence and contextual sensitivity. Leaders who demonstrate relational awareness and behavioral flexibility are more likely to achieve outcomes such as employee retention, operational continuity, and reduced burnout (Breevaart et al. 2013).

Burns (1978) introduced the distinction between transformational and transactional leadership. Transactional leadership emphasizes directive control, routine supervision, and performance-based rewards or penalties, making it well-suited for stability and short-term outcomes (Bass 1985, Sultana et al. 2015). In contrast, transformational leadership fosters trust, autonomy, and shared purpose, inspiring employees to exceed expectations and promoting intrinsic motivation (Breevaart et al. 2013, Tyssen et al. 2014).

In telework settings, where physical oversight is limited, transformational leadership has been shown to support virtual collaboration, enhance motivation, and sustain performance through empowerment and vision-sharing (Gajendran and Harrison 2007, Contreras et al. 2020). However, excessive autonomy without sufficient structure may reduce the motivational value of external resources or diminish urgency under high job demands. On the other hand, transactional leadership—with

its structured processes and clear performance expectations—can complement job resources in telework environments where consistency and predictability are valued (Sultana et al. 2015, Aydin 2018). In fragile states, where unreliable internet, inconsistent electricity, and weak infrastructure prevail, leadership must adapt to these situational constraints (Vidal et al. 2017).

Although transformational leadership is widely celebrated for inspiring vision, its impact may be contingent upon contextual conditions like resource availability and institutional stability. In fragile environments, a visionary approach may mismatch immediate employee needs, potentially weakening the impact of available resources or job demands (Sabbah 2024, McGuire et al. 2021). This supports a situational view of leadership effectiveness in remote work under uncertainty and institutional fragility.

Leaders also shape how employees activate personal resources and manage job demands. Transformational leaders who offer encouragement and meaning can strengthen employee reliance on persistence, self-efficacy, and autonomy (Bass and Avolio 1994, Sabbah 2024). Similarly, transactional leaders can provide structure, contingent rewards, and clear communication to help employees utilize their internal capacities efficiently. Furthermore, transformational leaders can help reframe job demands as growth opportunities, improving performance even under strain.

H4: Transformational leadership moderates the relationship between external job resources and telework performance.

H5: Transactional leadership moderates the relationship between external job resources and telework performance.

H6: Transformational leadership moderates the relationship between internal job resources and telework performance.

H7: Transactional leadership moderates the relationship between internal job resources and telework performance.

H8: Transformational leadership moderates the relationship between job demands and telework performance.

H9: Transactional leadership moderates the relationship between job demands and telework performance.

3 | RESEARCH METHODOLOGY

3.1 | Data Collection

Taking into consideration the weakness of the public sector in fragile states, this study focused on the private sector. Data collection was conducted in 2024 using a snowball sampling technique, resulting in 310 complete and valid responses (see Table 1). A structured questionnaire was distributed via Google Forms to individuals who were currently teleworking. The study targeted employees from various private companies in Lebanon, a country classified as a fragile state according to the Fragile States Index (The Fund for Peace 2024).

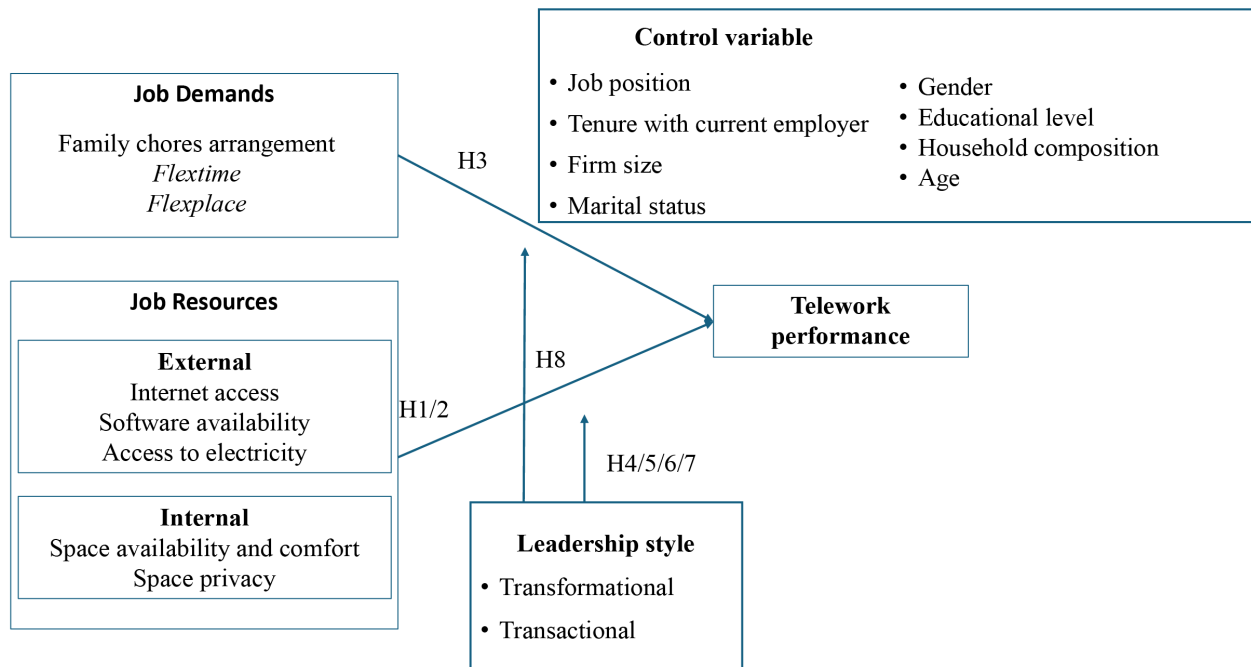


FIGURE 1 Conceptual model.

The research complied with established ethical standards. Participants were informed of the study's purpose, the voluntary nature of participation, anonymity, and confidentiality measures. No personally identifiable information was collected, and participants could withdraw at any point without consequence. At the time of the study, formal Institutional Review Board approval was not sought, as such approval is not universally required for anonymous social science research in Lebanon. Additionally, no sensitive or high-risk data were gathered, and the research did not involve vulnerable populations or interventions that could cause harm.

The surveyed population consisted of individuals with varying educational backgrounds. The majority held a bachelor's degree or equivalent (50.32%), followed by master's degree holders (36.77%), and those with secondary or technical education (7.74%). A smaller portion held a doctorate or equivalent (5.16%). This sample is not representative of the general Lebanese population but reflects the typical pattern produced by snowball sampling, a non-probabilistic technique based on personal networks (Dragan and Isaic-Maniu 2013).

Furthermore, most respondents worked in the services sector (80.65%), while 10.32% worked in trade and 9.03% in manufacturing. This mirrors the structural composition of the Lebanese economy, where the service sector dominates, especially during the COVID-19 pandemic period.

3.2 | Measurements

The questionnaire comprises five main sections: internal resources, external resources, job demands, telework performance, and leadership style. Answers to all these items were gathered using a 5-point Likert scale (see Table 2). For instance, external resources included software availability, electricity supply, and internet access. Internal resources included items related to space availability and comfort, and space privacy. The items of job resources were generally inspired by the works of Cuervo-Vilches et al. (2021), European Environment Agency (EEA) (2022).

Job demands included items related to time flexibility, place flexibility, and family chores arrangement, adapted from Ameen et al. (2023) and Baert et al. (2020). Employee performance perception, the dependent variable of our research, was measured using six items: concentration on work tasks, quality of communication with colleagues, self-control in time management, performance compared to usual working conditions, ability to deliver work on time, and ability to deliver work according to quality standards. These were drawn from Ameen et al. (2023), Yang and Hwang (2014) and Baert et al. (2020).

Leadership style was assessed through 18 items—ten items for transformational leadership (TF) and eight for transactional leadership (TA)—adopted from Mitchell (2019).

TABLE 1 Sample characteristics

Characteristic	Dimensions	Frequency	Percentage (%)
Gender	Male	198	63.87
	Female	112	36.13
Age (in years)	<25	12	3.87
	25 to 34	170	54.84
	35 to 44	78	25.16
	45 to 54	38	12.26
	>54	12	3.87
Education	Secondary or Technical	24	7.74
	Bachelor's	156	50.32
	Master's	114	36.77
	Doctorate	16	5.16
Marital Status	Single	180	58.06
	Married	126	40.65
	Divorced	4	1.29
Household	With parents	158	50.97
	With spouse and children	64	20.65
	Alone	30	9.68
	With spouse only	26	8.39
	With roommates	20	6.45
	Extended family	12	3.87
Job Position	Entry level	54	17.42
	Officer level	160	51.61
	Managerial level	96	30.97
Sector	Services	251	80.65
	Trade	32	10.32
	Manufacturing	28	9.03
Firm Size (employees)	<10	38	12.26
	10 to 50	72	23.23
	51 to 100	46	14.84
	>100	154	49.68
Tenure (years)	<3	116	37.42
	3 to 10	128	41.29
	>10	66	21.29

3.3 | Procedure and Statistical Analysis

This study used online questionnaires that were completed voluntarily and anonymously. SPSS version 24.0 was used for statistical analysis, and the Bootstrap method was used to test the significance of the regression coefficients (Wen and Ye 2014). The PROCESS macro program was used in its version 3.3 developed by Hayes (2013), widely used in the literature because it integrates the Bootstrap method to estimate confidence intervals and test the statistical significance of indirect and conditional effects. Specifically, Model 2 was used to analyze the specific moderation effects. The sampling distribution was reconstructed by random sampling with effective replacement. In this study, a total of 5000 samples were generated, each with a size of 310 cases. From this, the standard error (SE) and 95% confidence interval (95% CI) of the parameter estimate were obtained. If the 95% CI does not include the value zero, the statistical results are considered to be significant.

3.4 | Validity of Scale

Table 3 provides the Cronbach's alpha coefficient for each factor, demonstrating the reliability of the scales used in the study. Using the

statistical tool SPSS version 24.0, exploratory factor analysis (EFA), reliability analysis and multiple linear regression models were applied to ensure the internal consistency of the measures applied (Hair et al. 2021). The table presents detailed reliability and validity metrics, including Composite Reliability (CR) and Average Variance Extracted (AVE), which confirm the convergent validity of the constructs measured (Fornell and Larcker 1981).

4 | RESULTS

To test our hypotheses, we employed a two-step quantitative strategy. First, we used multiple linear regression to analyze the direct effects of job demands and resources on telework performance, while controlling for demographic variables. Second, we applied the PROCESS macro (Model 2) developed by Hayes (2013) to test the moderating effects of leadership styles—transformational and transactional—on the relationship between job characteristics and telework performance.

TABLE 2 Constructs, Items, and Sources

Construct	Code	Item	Source
Internal resources	RI_1	Space availability and comfort (sufficient space, ergonomic desk, lighting, etc.)	Cuerdo-Vilches et al. (2021), EEA (2022)
	RI_2	Space privacy (unshared workspace, absence of disturbances)	
	RE_1	Electricity supply (daily hours of supply from various sources)	
External resources	RE_2	Internet access (speed, quality, and volume)	Cuerdo-Vilches et al. (2021), EEA (2022)
	RE_3	Software availability (use of collaborative platforms)	
	JD_1	Time flexibility offered by teleworking	
Job demands	JD_2	Place flexibility offered by teleworking	Ameen et al. (2023), Baert et al. (2020)
	JD_3	Ability to manage family chores due to telework	
	JD_4	Load of housework and care intensity during telework	
	PF_1	Difficulty concentrating on work tasks	
Telework performance	PF_2	Decline in communication quality with colleagues	Ameen et al. (2023); Baert et al. (2020); Yang and Hwang (2014)
	PF_3	Tendency to procrastinate during telework	
	PF_4	Improved performance under telework conditions	
	PF_5	Timely task completion	
	PF_6	Ability to deliver work according to quality standards	
Transformational Leadership	LTF_1	Considers individual differences in needs and aptitudes	Mitchell (2019)
	LTF_2	Supports skill and strength development	
	LTF_3	Considers ethical consequences of decisions	
	LTF_4	Emphasizes shared goals and responsibility	
Transactional Leadership	LTA_1	Offers support only in exchange for effort	Mitchell (2019)
	LTA_2	Focuses on errors and grievances	
	LTA_3	Keeps record of mistakes	
	LTA_4	Points out standards violations	

4.1 | Analysis

To test the hypotheses, we used multiple regression as an analytical method. In order to avoid erroneous interpretations resulting from collinearity between the predictors and to isolate the relationship studied from the influence of control variables (gender, household composition, and age), five regression models were considered for the dependent variable, telework performance.

In the first model, only the control variables were entered. Each of the three resource variables (job demand, internal resources, and external resources) was incorporated independently in the next three models. In the fifth model, the three main predictors were entered together using a stepwise procedure. This approach ensured that only those variables with greater predictive power, capable of explaining the variance in telework performance beyond the control variables, were retained.

The regression results (Table 5) confirm significant effects for gender and household composition across all models. Notably, job demand, internal resources, and external resources each exert significant positive effects on telework performance, with external resources (e.g., internet, electricity, software) demonstrating the strongest impact.

4.2 | Moderating Effects: Leadership Style

We used the PROCESS macro for SPSS (version 3.3) developed by Hayes (2013) to test our hypotheses on the conditional effects of job demands and resources on telework performance, considering the moderating roles of transformational and transactional leadership styles. Specifically, we employed Model 2 of the macro to estimate two independent moderators of a predictor on a dependent variable. A bootstrap procedure with 5,000 resamples was applied to generate bias-corrected confidence intervals for assessing the robustness of estimates.

The results revealed significant direct effects of both job demands/resources and transformational leadership on telework performance. However, the interaction terms (e.g., *job demands* × *transformational leadership* and *job demands* × *transactional leadership*) were not statistically significant in most cases (see Table 6). These findings suggest that while job demands/resources and transformational leadership independently contribute to telework performance, their joint interactions do not consistently alter the strength or direction of this relationship. Demographic variables such as age, gender, and household composition were included as controls to account for potential confounding effects (Mueller et al. 2005).

TABLE 3 Reliability and Validity of the Data

Construct	F1_JD	F2_LTF	F3_LTA	F4_RE	F5_RI	F6_PF
Job Demand						
JD_1	.879					
JD_2	.910					
JD_3	.859					
JD_4	.182					
Transformational Leadership Style						
LTF_1		.724				
LTF_2		.781				
LTF_3		.703				
LTF_4		.827				
Transactional Leadership Style						
LTA_1		.601				
LTA_2			.612			
LTA_3			.849			
LTA_4			.673			
External Resources						
RE_1				.741		
RE_2				.773		
RE_3				.703		
Internal Resources						
RI_1					.675	
RI_2					.708	
Telework Performance						
PF_1						.244
PF_2						.188
PF_3						.240
PF_4						.196
PF_5						.262
PF_6						.242
Cronbach's α	.739	.804	.717	.773	.803	.812

TABLE 4 Correlation Matrix

	F1_JD	F2_LTF	F3_LTA	F4_RE	F5_RI	F6_PF
F1_JD	1					
F2_LTF	.306**	1				
F3_LTA	.074	.000	1			
F4_RE	.424**	.327**	.192**	1		
F5_RI	.209**	-.066	.158**	.000	1	
F6_PF	.480**	.292**	-.021	.424**	.194**	1

Note: ***p<0.01, **p<0.05, *p<0.10

These results indicate significant direct effects of transformational and external resources. However, the interaction effects for internal leadership on telework performance in interaction with job demands

TABLE 5 Direct Effects from Linear Regression Analysis

Predictor	Model 1	Model 2	Model 3	Model 4	Model 5
Constant	-0.237	0.183	0.009	-0.366	0.031
Gender	0.403***	0.104***	0.331***	0.560***	0.402***
Age	0.056	0.063	-0.005	0.063	0.014
Household	-0.156**	0.038***	-0.154***	-0.322***	-0.211***
Job Demand		0.049***			0.312***
Internal Resources			0.192***		0.127***
External Resources				0.500***	0.355***
R^2	0.068	0.300	0.100	0.239	0.395
F	7.446***	32.715***	8.484***	33.774***	34.654***
ΔF	—	101.207***	10.876***	105.157***	57.722***

Note: ***p<0.01, **p<0.05, *p<0.10

TABLE 6 Moderation Analysis Using PROCESS Macro Model 2

Moderator	Coef. (p-value)	SE	t-stat	95% CI (LL)	95% CI (UL)	Hypothesis
Transformational Leadership (H1)	-0.1910***	0.0430	-4.4403	-0.2756	-0.1063	Accepted
Transactional Leadership	0.0595	0.0509	1.1693	-0.0406	0.1591	Rejected
Transformational Leadership (H2)	-0.2480***	0.0532	-4.4403	-0.3528	-0.1433	Accepted
Transactional Leadership	0.1345*	0.0608	1.1693	0.0149	0.2542	Accepted
Transformational Leadership (H3)	-0.0188	0.0624	-0.3008	-0.1415	0.1040	Rejected
Transactional Leadership	0.0971	0.0591	1.6437	-0.0191	0.2133	Rejected

Note: *p < .05, **p < .01, ***p < .001

resources were not statistically significant. Transactional leadership showed weaker or non-significant moderating effects.

4.3 | Hypothesis Testing Summary

Table 7 summarizes the results of hypothesis testing based on the regression and moderation analyses.

TABLE 7 Summary of Hypothesis Testing Results

Hypothesis	Result
H1: Job Demands → Telework Performance	Accepted
H2: External Resources → Telework Performance	Accepted
H3: Internal Resources → Telework Performance	Accepted
H4: Transformational Leadership moderates H1	Accepted
H5: Transactional Leadership moderates H1	Rejected
H6: Transformational Leadership moderates H2	Accepted
H7: Transactional Leadership moderates H2	Accepted
H8: Transformational Leadership moderates H3	Rejected
H9: Transactional Leadership moderates H3	Rejected

The results confirm that both job demands and resource factors significantly influence telework performance. Leadership styles—particularly transformational leadership—play an important independent role but do not consistently moderate these relationships across all types of job resources.

5 | DISCUSSION

5.1 | Teleworking Job and Demands in Fragile States

The positive and significant direct relationships observed between internal and external job resources, as well as job demands, and telework performance are consistent with the foundational assumptions of the JD-R model (Bakker and Demerouti 2007). While these findings may appear predictable at first glance, their implications are particularly salient within the context of a fragile state.

The strong positive effect of external resources (H2) underscores the critical importance of basic infrastructure—such as stable internet and electricity supply—in enabling effective telework. In fragile contexts,

where such resources are often scarce or inconsistent, even modest improvements in external conditions can yield disproportionately positive outcomes (Dwivedi et al. 2020, Venkatesh et al. 2016). For instance, access to freely available digital tools like WeChat or WhatsApp can facilitate knowledge sharing and boost performance among remote workers (Guechtouli 2024, Purvis and Zhang 2024).

Internal resources (H3)—including resilience, adaptability, and self-efficacy—also demonstrated a significant positive effect on telework performance. This finding reveals that psychological assets can serve as a compensatory mechanism in the absence of stable external support. It further suggests that organizations operating in fragile environments would benefit from developing training and development programs that cultivate these internal competencies (Bartsch et al. 2020, Contreras et al. 2020). Future research might explore the roles of tacit and explicit knowledge in enhancing such competencies (Rodríguez-Escobar et al. 2022).

The significant and positive relationship between job demands and telework performance (H1) is somewhat counterintuitive. Traditional applications of the JD-R model associate high demands with burnout and reduced performance. However, within the extraordinary circumstances of the COVID-19 pandemic and a fragile-state setting, increased demands may have activated adaptive behaviors among employees. This result aligns with the challenge-hindrance stressor framework (Cavanaugh et al. 2000), which posits that demands perceived as challenges—rather than threats—can enhance engagement and performance, especially when tied to personal growth or organizational survival.

Taken together, these findings suggest that workers in fragile states are capable of enacting unique adaptive strategies to maintain performance despite considerable obstacles. For policymakers and managers, this implies that investments in even basic infrastructure, as well as psychological skill-building, may have outsized effects on employee performance. Moreover, how job demands are communicated and structured matters: when framed as opportunities for development, they may catalyze positive performance outcomes even under duress.

It is also worth noting that although internal resources positively affected telework performance, their interaction with leadership style was not statistically significant. This may suggest that employees with strong internal resources develop a sense of self-reliance, rendering

them less dependent on external managerial support. Motivation, autonomy, and personal flexibility—hallmarks of internal resourcefulness—appear to empower workers to manage their tasks independently, especially in fragile contexts where external support is limited or absent.

5.2 | Leading Under Fragility: The Role of Leadership Style

The findings from this study reveal important insights into the role of leadership styles as moderating variables in the relationship between job demands/resources and telework performance, especially within the context of a fragile state. Moderation results indicate that transformational leadership significantly moderates the relationship between external resources and telework performance, but interestingly, the effect is negative. Specifically, transformational leadership appears to diminish the positive impact of external resources on performance (H6). This aligns with theoretical perspectives suggesting that, in contexts with abundant external resources, overly visionary or abstract leadership may overwhelm or distract employees, thereby reducing their ability to capitalize effectively on those resources (Tyssen et al. 2014, Breevaart et al. 2013).

In contrast, transactional leadership was found to positively moderate the impact of external resources on telework performance. This suggests that when employees are well-equipped with electricity, internet, and software, transactional leadership—characterized by pragmatic goal-setting and structured feedback—can enhance performance through clear expectations and support. This supports the idea that transactional leadership can be effective in resource-rich, performance-oriented settings.

Notably, neither leadership style significantly moderated the relationship between internal resources and telework performance (H8 and H9). This supports the notion that internal resources—such as resilience, adaptability, and self-motivation—function relatively independently from managerial influence in telework settings. Especially in fragile contexts, these competencies enable employees to self-manage and perform despite limited external support (Gajendran and Harrison 2007, Contreras et al. 2020). The capacity for trust-building through appropriate use of digital systems is increasingly essential in such leadership contexts (Lissillour and Sahut 2023a).

Recent evidence also emphasizes the role of transformational leadership in supporting organizational endurance during crises. Sabbah (2024) argues that such leaders foster adaptability, innovation, and commitment—traits vital for business continuity in fragile environments. However, the current findings suggest that these benefits may be conditional. When infrastructure is lacking or institutional volatility is high, transformational leadership may be ineffective or even counterproductive. In such settings, visionary aspirations can feel disconnected from day-to-day operational constraints.

Moreover, Luo (2024) highlights the importance of flexible leadership strategies that respond to contextual pressures and gender dynamics. This reinforces the view that rigid adherence to a single

leadership model—be it transformational or transactional—is unlikely to be effective in fragile-state environments, where adaptability and responsiveness are key to managing uncertainty.

Transformational leadership negatively moderated the relationship between job demands and telework performance (H4). This finding is consistent with earlier research that positions transformational leadership as a buffer against stressors by fostering motivation and positive reinterpretation of challenges (Bass and Riggio 2006, Breevaart et al. 2013). However, it also cautions that excessive idealism or lack of practical support could reduce effectiveness under intense pressure. Conversely, transactional leadership did not significantly moderate this relationship (H5). Despite its emphasis on clear structures and monitoring (Bass 1985, Burns 1978), transactional leadership may lack the flexibility necessary for navigating high-demand telework situations in fragile contexts (Sultana et al. 2015).

Overall, the moderation results enrich the Job Demands–Resources framework by demonstrating the nuanced and context-sensitive role of leadership (Bakker and Demerouti 2007). They emphasize the need for adaptive leadership strategies in fragile-state environments marked by political instability, infrastructural deficiencies, and institutional uncertainty. In such scenarios, leaders must skillfully balance structural guidance with motivational support to sustain performance (Fiedler 1967, Vidal et al. 2017).

In the Lebanese context—defined by economic uncertainty, unreliable infrastructure, and weak institutional support—leadership assumes a different function compared to more stable environments. Here, transformational leadership may be hampered by the absence of institutional scaffolding necessary to implement long-term visions. Conversely, transactional leadership, with its emphasis on structure and clarity, may offer a more effective means of maintaining productivity and morale. Ultimately, in fragile settings, effective leadership is less about theoretical style preference and more about pragmatically responding to the realities of survival, where reliability and responsiveness outweigh ideology.

6 | CONCLUSION

This study examined the dynamics of teleworking in Lebanon, a fragile state marked by infrastructural unreliability and economic collapse, which posed substantial barriers to effective remote work. The findings affirm that job demands and resources exert a positive influence on telework performance. However, the moderating role of leadership produced more nuanced results. Specifically, transformational leadership was found to diminish the positive effect of job demands on telework performance. In contrast, transactional leadership had no significant impact on this relationship, suggesting that it may perform more effectively than transformational leadership under high job demand conditions by avoiding additional pressure.

As expected, high job resources were positively associated with improved performance. This relationship was enhanced under transactional leadership but reduced under transformational leadership. Internal resources also contributed positively to telework performance, yet neither form of leadership significantly moderated this relationship. These results contribute to the JD–R theory by validating that both internal and external resources can promote performance, even in challenging institutional settings. The study further extends the JD–R framework by incorporating leadership as a contextual moderator and exploring its effects within fragile-state environments—a largely underexplored domain in the literature.

Although the study did not explicitly address organizational power dynamics (Lissillour and Monod 2024), it advances institutional and organizational theory by showing that telework performance in fragile contexts is shaped not only by firm-level factors but also by broader systemic deficits such as electricity shortages, internet unreliability, and informal governance structures (Khanna and Palepu 2010, Mair et al. 2012).

From a practical perspective, this research highlights the importance for organizations operating in low-resource settings to develop proactive telework strategies. These should include investments in digital infrastructure, leadership development, and psychological support systems. Organizations must strengthen both structural and personal resources while also mitigating excessive job demands. For example, investments in stable internet and power supply, as well as training programs focusing on autonomy and resilience, can enhance both engagement and output (Lissillour and Sahut 2022).

Three practical recommendations emerge for managers in fragile states. First, prioritize the provision of external resources—such as internet connectivity, electricity, and essential digital tools—as they have the most direct influence on telework outcomes. Second, adopt transactional leadership strategies that emphasize clarity, consistency, and task orientation, which appear more effective under resource-constrained and high-demand conditions. Third, focus on building employees' internal resources, including adaptability, time management, and self-motivation, especially when environmental predictability is low.

Despite its contributions, this study has several limitations. First, the use of snowball sampling—a non-probabilistic approach—may have introduced sample bias towards more digitally literate and educated participants (Dragan and Isaic-Maniu 2013), limiting generalizability. Second, the study's contextual focus on Lebanon may constrain the transferability of findings to other fragile states. Future research should aim to conduct cross-national comparative studies to improve external validity. Third, the data were cross-sectional and collected during the COVID-19 pandemic, offering no insight into how performance and attitudes evolved over time.

Future research could adopt stratified random sampling across sectors, compare different fragile-state settings using the Fragile States Index (The Fund for Peace 2024), and examine leadership adaptation in organizations with varied institutional frameworks (Lissillour 2021, Wang 2024, Viainon 2024). Standardized operational definitions for

job demands and resources tailored to fragile contexts would also strengthen measurement validity. Lastly, future studies might explore how cultural and national contexts affect JD–R dynamics, with a focus on variables such as emotional intelligence (Haque and Lissillour 2025), specific leadership behaviors (Baio et al. 2024), and innovation-supportive cultures (Quashigah and Amuzu 2024).

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CONFLICT OF INTEREST

The authors declare no potential conflict of interests.

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SUPPORTING INFORMATION

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AUTHORS BIOGRAPHY

Najib Ghrayche holds a DBA from IPAG Business School and his research focus on work and entrepreneurship in fragile states environments.

Javier Alfonso Rodríguez-Escobar is a professor at Universidad Europea Miguel de Cervantes. With over 15 years of professional experience in the field of economics, he has taught at various levels of university education. Holding a Ph.D. in Economics and Management Sciences from the University of Salamanca (Spain), he is an accomplished economist. His research interests primarily revolve around quality management, supply chain management, innovation, and strategic alignment.

Raphael Lissillour is an associate professor in management at IPAG Business School and holds the position of China Program Director. He created and directs professional doctoral programs, Msc, EMBA and MBA programs in foreign markets in Asia and Africa in which he promotes the principles of Engaged Management Scholarship and Evidence-based Management. His scientific interests focus on (1) logistics and international relations with a focus on maritime safety, (2) sociological approaches to information systems, and (3) innovation and entrepreneurship. His research articles have been published in top-tier journals such as Journal of Business Research, Information Technology and People, The Learning Organization, Business Information System Engineering, Supply Chain Forum: An International Journal.

Shamila Ramjawan holds a doctorate from the Management College of Southern Africa (MANCOSA) and is currently a lecturer at CamEd Business School in Cambodia. She previously served as a Business Management lecturer at the University of South Africa (UNISA). She is an award-winning entrepreneur, author, and global humanitarian.