

Designing a Model for Antecedents and Consequences of Leadership in National Iranian Gas Company: A Case Study of Kerman Gas Company

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Highlights

- A model of leadership antecedents and consequences was developed for the National Iranian Gas Company.
- A mixed-method approach was applied, combining qualitative and quantitative research.
- Data were collected through expert interviews, document reviews, and surveys.
- Key themes included participatory management, transparency, talent management, and organizational justice.
- The proposed model demonstrated good fit and practical implications for organizational development.

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Abstract

Leadership is a combination of managerial attitudes and behaviors that directly influence individual and organizational performance. This study aimed to design a model of the antecedents and consequences of leadership in National Iranian Gas Company (NIGC). We used a mixed-method approach, and the qualitative phase involved 18 experts with extensive academic and professional experience, including university lecturers and senior managers in organizational behavior and human resources management. The quantitative phase included 265 employees from the Kerman Gas Company, selected via stratified sampling. Data were collected through document reviews, expert interviews, and structured questionnaires. The analyses employed thematic analysis, structural-interpretive modeling, and structural equation modeling using NVIVO, SPSS, and Smart-PLS software. The findings identified 82 primary codes, 21 basic themes, and 8 organizing themes, encompassing factors such as participatory decision-making, internal (individual) influences, emphasis on organizational values, talent management, transparency in communication, employee retention, organizational productivity and growth, and organizational justice. Structural equation modeling demonstrated high reliability (Cronbach's alpha > 0.7), favorable composite reliability, and strong convergent and divergent validity. The model's fit was validated, with participatory management identified as the primary driving force in enhancing organizational stability and performance. This study provides practical insights into the implementation of effective leadership practices, offering a framework to improve decision-making, foster employee engagement, and enhance organizational outcomes. The findings serve as a strategic tool for managers to promote a culture of inclusivity, transparency, and growth within the National Iranian Gas Company.

Keywords: Antecedent model, Kerman, Leadership consequences, National Iranian Gas Company.

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1. Introduction

Leadership has been a topic of significant interest and debate among thinkers and experts for centuries. It can be argued that leadership has sparked more discussion than almost any other subject in the history of human civilization (Antonopoulou et al., 2020). One of the main reasons for this is the extraordinary influence that leaders have in initiating reforms and driving desirable changes (Hampton, 1986). Differences in leadership styles are often the most critical factor in determining an organization's success or failure. In today's dynamic environment, leadership directly correlates with organizational success, and the efficiency or inefficiency of leadership methods plays a decisive role (Newstrom and Davis, 2007).

Despite extensive research on leadership, this concept remains complex and, in many ways, ambiguous. The evolution of leadership studies highlights various perspectives, yet recent years have seen growing attention to the characteristics of leaders themselves (Flynn, 2003). Modern organizations demand leaders who transcend the conventional leader-follower relationship. These leaders inspire trust rather than exert control, promote independence rather than impose restrictions, and practice generosity rather than narcissism. In a generous leadership style, leaders exhibit curiosity, dedication, and passion. They freely share their time, knowledge, and trust with employees, creating opportunities for growth and collaboration (Caldwell and Anderson, 2020).

A review of Iranian organizations reveals systemic inefficiencies and ineffectiveness. Studies identify issues such as lack of participation, centralization, inflexibility, task delays, indifference toward results, low accountability, and overall inefficiency (Laali Sarabi et al., 2011). Ineffective leadership styles are often cited as the root cause of these problems (Hamzepour, 2018). Consequently, Iranian organizations need leaders who can provide clear direction, motivate employees, and foster transformation (Mazloomi et al., 2012). National Iranian Gas Company exemplifies this need, as achieving maximum productivity and customer satisfaction remains a vital goal (Nasirnateri et al., 2023). Addressing these challenges requires prioritizing effective human resources management and leadership.

Preliminary investigations, including interviews with officials and employees, emphasize the critical role of teamwork among managers in enhancing productivity and achieving success. However, the company's current performance is deemed suboptimal, with significant issues such as the lack of motivation, trust, teamwork spirit, dedication, and forgiveness. These challenges are closely linked to ineffective leadership. A generous leadership style—characterized by openness, empathy, and a collaborative approach—has the potential to address these deficiencies and drive organizational success.

1.1. Research gap

While previous studies have explored various leadership styles, limited attention has been paid to the concept of generous leadership, especially in the context of large organizations like National Iranian Gas Company. Existing research primarily focuses on traditional leadership attributes, overlooking the transformative potential of generosity-driven leadership. Thus, this study aims to fill this gap by developing a comprehensive model of the antecedents and consequences of generous leadership, tailored to the unique challenges of Iranian organizations.

1.2. Research questions

This study seeks to answer the following questions:

- What are the key antecedents of generous leadership in the context of National Iranian Gas Company?

- What are the primary outcomes of implementing generous leadership within the organization?
- How can generous leadership practices address the specific challenges National Iranian Gas Company faces?

2. Methodology

2.1. Research environment and population

This work is a mixed-method, explanatory study. Using a mixed-method approach is essential due to the importance of simultaneously examining both qualitative and quantitative aspects of the model of generous leadership outcomes at National Iranian Gas Company. Since leadership is a complex and multi-dimensional phenomenon, a mixed-method approach allows for the exploration of underlying concepts and dimensions of leadership through qualitative data, which are then tested and validated by quantitative data. This approach enables the researcher to employ both types of data for model expansion and validation, ensuring that the results are comprehensive and accurate.

Two statistical populations were used in this study, which is based on a mixed-method approach (qualitative–quantitative).

2.2. Experts related to subject

In the model design stage, the statistical population included 18 university professors specializing in organizational behavior and human resources, as well as the senior managers of National Iranian Gas Company. The experts had the following characteristics:

- Work experience in leadership;
- Presence of experts from senior management positions at National Iranian Gas Company;
- Presence of academic experts with relevant qualifications as opposed to professional experts;
- Theoretical knowledge, practical experience, willingness, and ability to participate in the study;
- Employees of the Gas Company of the Kerman province.

In the model validation stage, the statistical population included the employees of the Gas Company of the Kerman province, totaling 1124 during the study. Purposeful sampling was conducted for interviews. The sampling of the experts continued until theoretical saturation was reached. For sample size determination, Cohen's formula was applied, and 265 participants were selected using stratified sampling to ensure that the sample represented the entire statistical population.

In this section, the process of sample selection should be described more clearly. Particularly, it is important to ensure that the selection process is purposeful, considering the listed characteristics of participants, and that bias in the selection of participants is minimized.

2.3. Data collection method

Both library-based (referring to written sources such as books and articles) and field-based (interviews with experts and distribution of questionnaires) data collection methods were used in this study.

2.4. Data collection tools

2.4.1. Qualitative data collection tool (interview)

In the qualitative section, semi-structured interviews were used as a data collection tool. After each interview, the text obtained was examined, and conceptual labels were assigned based on the key points in the interview. After initial coding, the researcher integrated and categorized similar codes into

broader themes, eventually identifying similar concepts at the thematic level. This method allowed the researcher to use information from previous interviews in subsequent ones.

2.4.2. Quantitative data collection tool (questionnaire)

A quantitative questionnaire was designed to examine the model's validity. It was scored on a five-point Likert scale from very low to very high. Table 1 presents the number of questions related to each dimension.

Table 1

The number of questions related to the designed model validation questionnaire

Variable	Dimensions	Number of questions	Questions
Antecedents and outcomes of generous leadership in National Iranian Gas Company	Internal (individual) factors	7	1 to 7
	Emphasis on organizational values	10	8 to 17
	Involving employees in decision-making (participatory management)	6	18 to 23
	Organizational talent management	11	24 to 34
	Transparency and openness in organizational communication	5	35 to 39
	Employee retention	12	40 to 51
	Productivity and organizational growth	20	52 to 71
	Organizational Justice	11	72 to 82

The data of this study were analyzed at three descriptive, exploratory, and inferential levels. At the descriptive level, demographic characteristics were described using statistics such as frequency, percentages, and mean. In the exploratory section, the thematic analysis method was employed to identify generous leadership outcomes in National Iranian Gas Company. In the inferential stage, the structural–interpretive modeling technique was utilized to investigate the relationships and leveling of generous leadership outcomes in National Iranian Gas Company. To prioritize the results of generous leadership in National Iranian Gas Company, we employed the DIMTEL technique, and structural equation modeling was used to examine the designed model's validity. NVIVO, SPSS, and Smart PLS software packages were used to analyze the research data.

Using structural equation modelling (SEM) was essential due to the complexity of the hypothesized relationships in the study, which involve multiple mediating and moderating variables, as well as latent constructs. Unlike simpler regression models, SEM enables simultaneous estimation of multiple pathways, providing a more comprehensive understanding of the interplay between variables. This holistic approach aligns with the study's theoretical framework, which posits intricate causal relationships that cannot be adequately captured by single-equation models.

3. Results

Three of the participants were female, and the rest were male (83.3%); Seventy eight percent of them had specialized Ph.D. degrees, and 67% were university lecturers (see Table 2).

Table 2

The demographic characteristics of the participants in the first section

Activity	Specialized area	Employment history (years)	Education	Gender	Item
Lecturer	Human resources management	18	PhD	Male	Expert 1
Lecturer	Human resources management	21	PhD	Male	Expert 2
Lecturer	Organizational behavior management	9	PhD	Male	Expert 3
Lecturer	Human resources management	20	PhD	Male	Expert 4
Lecturer	Human resources management	18	PhD	Female	Expert 5
Lecturer	Human resources management	16	PhD	Male	Expert 6
National Iranian Gas Company	Public management	22	Master	Male	Expert 7
National Iranian Gas Company	Public management	23	Master	Male	Expert 8
National Iranian Gas Company	Industrial management	16	PhD	Male	Expert 9
Lecturer	Human resources management	19	PhD	Male	Expert 10
Lecturer	Human resources management	26	PhD	Male	Expert 11
National Iranian Gas Company	Industrial management	22	Master	Male	Expert 12
National Iranian Gas Company	Industrial management	22	PhD	Male	Expert 13
National Iranian Gas Company	Business management	19	Master	Male	Expert 14
National Iranian Gas Company	Organizational behavior management	6	PhD	Male	Expert 15
National Iranian Gas Company	Human resources management	17	PhD	Female	Expert 16
National Iranian Gas Company	Human resources management	14	PhD	Male	Expert 17
National Iranian Gas Company	Organizational behavior management	10	PhD	Female	Expert 18

The final themes were extracted after going through the stages of assigning primary codes to participants' speech fragments, assigning primary codes to extracted speech fragments, merging primary codes and extracting basic themes, categorizing basic themes into organizer themes, categorizing organizer themes into comprehensive themes, and finally compiling themes and providing feedback to participants (see Figure 1). The results showed that the extracted concepts related to the generous leadership outcome model in National Iranian Gas Company included 82 primary codes, 21 basic themes, and 8 organizing themes.

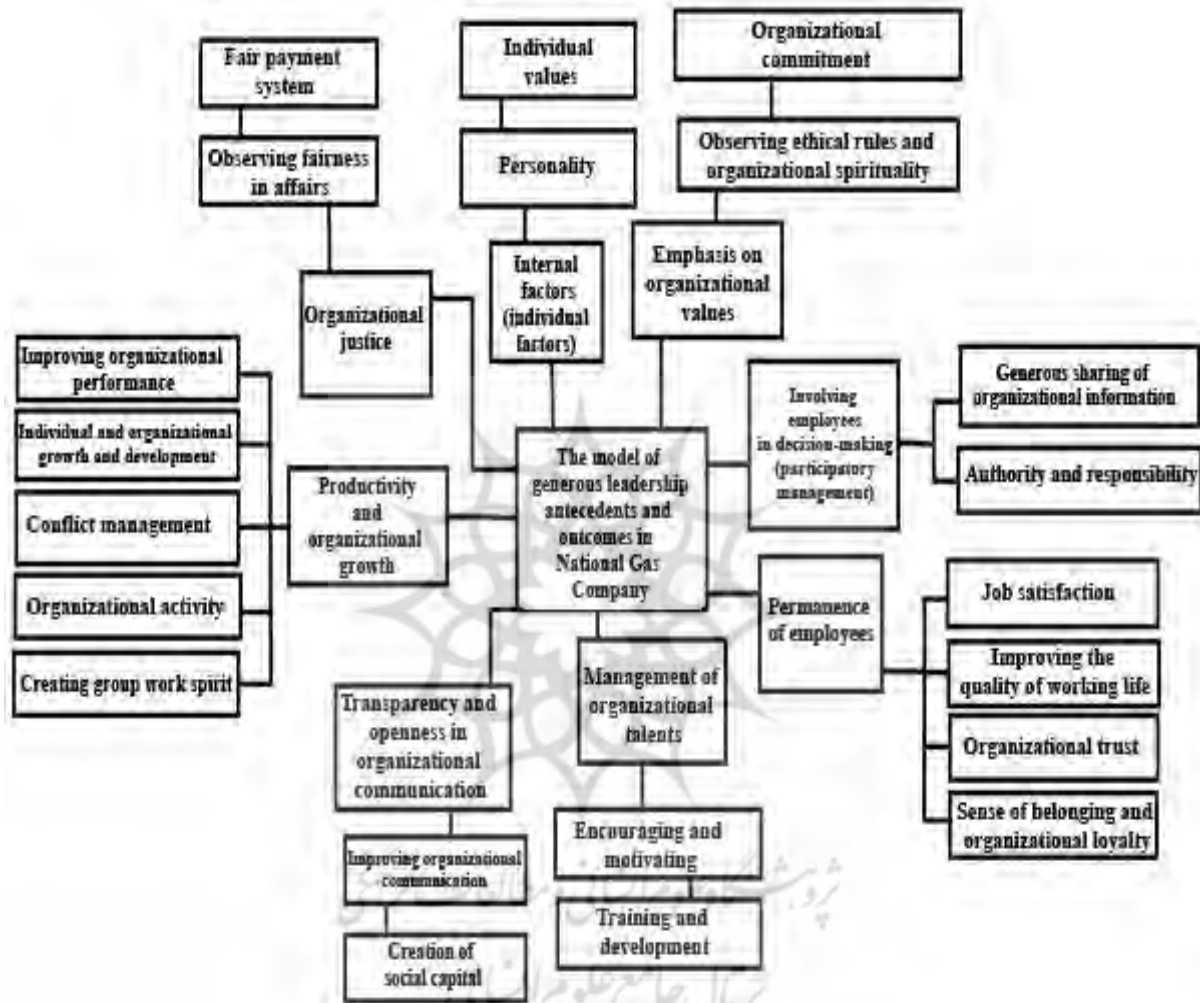


Figure 1

The conceptual model

The model fit was evaluated using standard indices, including root mean square error of approximation (RMSEA), comparative fit index (CFI), Tucker–Lewis index (TLI), and standardized root mean squared residual (SRMR). The results were as follows: RMSEA = 0.045, CFI = 0.93, TLI = 0.91, and SRMR = 0.04. These values fall within acceptable thresholds (e.g., RMSEA < 0.08, CFI > 0.90, and TLI > 0.90), indicating that the model fit the data well. These indices, alongside the chi-square test ($\chi^2/df = 2.31$), imply that the model adequately represents the data structure.

The relationships between the variables were examined in the structural equation modeling process. The independent variables, such as involving employees in decision-making (participatory management), showed high cause scores and low effect scores, while internal (individual) factors, emphasis on organizational values, and management of organizational talents had high cause and

moderate effect scores, making them independent-communicative variables. These variables exerted the most influence on the system and demonstrated high potential for disruption. The dependent variables, such as transparency in organizational communication, employee retention, organizational productivity and growth, and organizational justice, showed lower effect scores and were most affected by changes in the system. Overall, employee involvement in decision-making was identified as the primary driving force of the system.

Table 3 lists the employee sample sizes for the Gas Company of the Kerman province. The total number of employees in the study was 1124, with a sample size of 265 selected using stratified sampling.

Table 3

The number of employees and sample size of employees of the Gas Company of the Kerman province

Row	Organization title	Number of employees	Sample size	Row	Organization title	Number of Employees	Sample size
1	Anaz Gas Company	20	5	8	Rafsanjan Gas Company	104	24
2	Baft Gas Company	53	12	9	Zarand Gas Company	55	13
3	Bardesir Gas Company	35	8	10	Sirjan Gas Company	108	25
4	Bam Gas Company	56	13	11	Shahrehabak Gas Company	32	8
5	Jiroft Gas Company	30	7	12	Kerman Gas Company	560	132
6	Rabar Gas Company	24	6	13	Koohbanan Gas Company	16	4
7	Raver Gas Company	20	5	14	Kajnooj	11	3
Total					1124		

4. Structural equation modeling

To evaluate the validity of the proposed model of generous leadership antecedents and outcomes, we employed structural equation modeling. The normality of the data distribution was tested using the Kolmogorov–Smirnov test, which showed that most variables did not follow a normal distribution (p -value < 0.05), thereby prompting the use of the partial least squares (PLS) method for further analysis.

4.1. Model reliability and validity

- Cronbach's alpha reliability: The Cronbach's alpha values for all variables exceeded 0.7, indicating satisfactory internal consistency and reliability across all scales.
- Composite reliability: The composite reliability values for all variables were greater than 0.7, confirming that the measurement models had high reliability.
- Convergent validity: The average variance extracted (AVE) values for all variables were above 0.5, demonstrating strong convergent validity for the measurement models.
- Divergent validity: The squared AVE values for each variable were higher than the values of correlation with other variables, confirming that the model possessed good divergent validity (Figures 2 and 3).

The SEM results now include standard errors and 95% confidence intervals for all parameter estimates. These details allow for a precise evaluation of the reliability and statistical significance of the estimates. For instance, the path coefficient between variable A and variable B was 0.42 (SE = 0.08, $p < 0.001$), with a 95% CI [0.26, 0.58].

The statistical significance of all key pathways has been explicitly reported. Path coefficients, along with their p -values, highlight the strength and relevance of each relationship. For example, the pathway from participatory management to organizational justice was statistically significant ($\beta = 0.35$, $p < 0.01$).

A post hoc power analysis was conducted to confirm the adequacy of the sample size ($N = 265$). The analysis indicated a statistical power of 0.92 for detecting medium effect sizes ($f^2 = 0.15$) at a significance level of 0.05, which is above the commonly recommended threshold of 0.80.

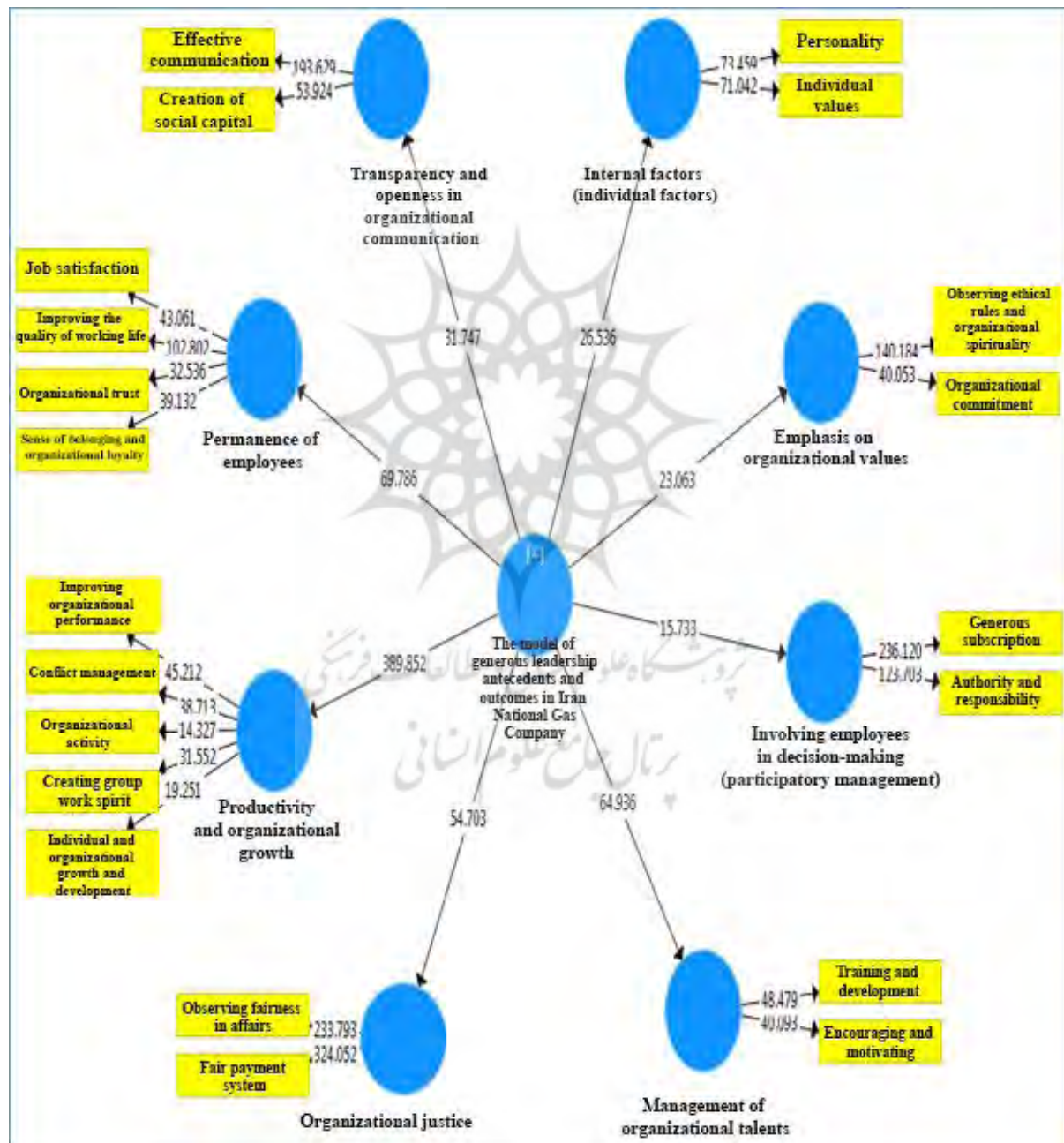


Figure 2

The research model in the standard state

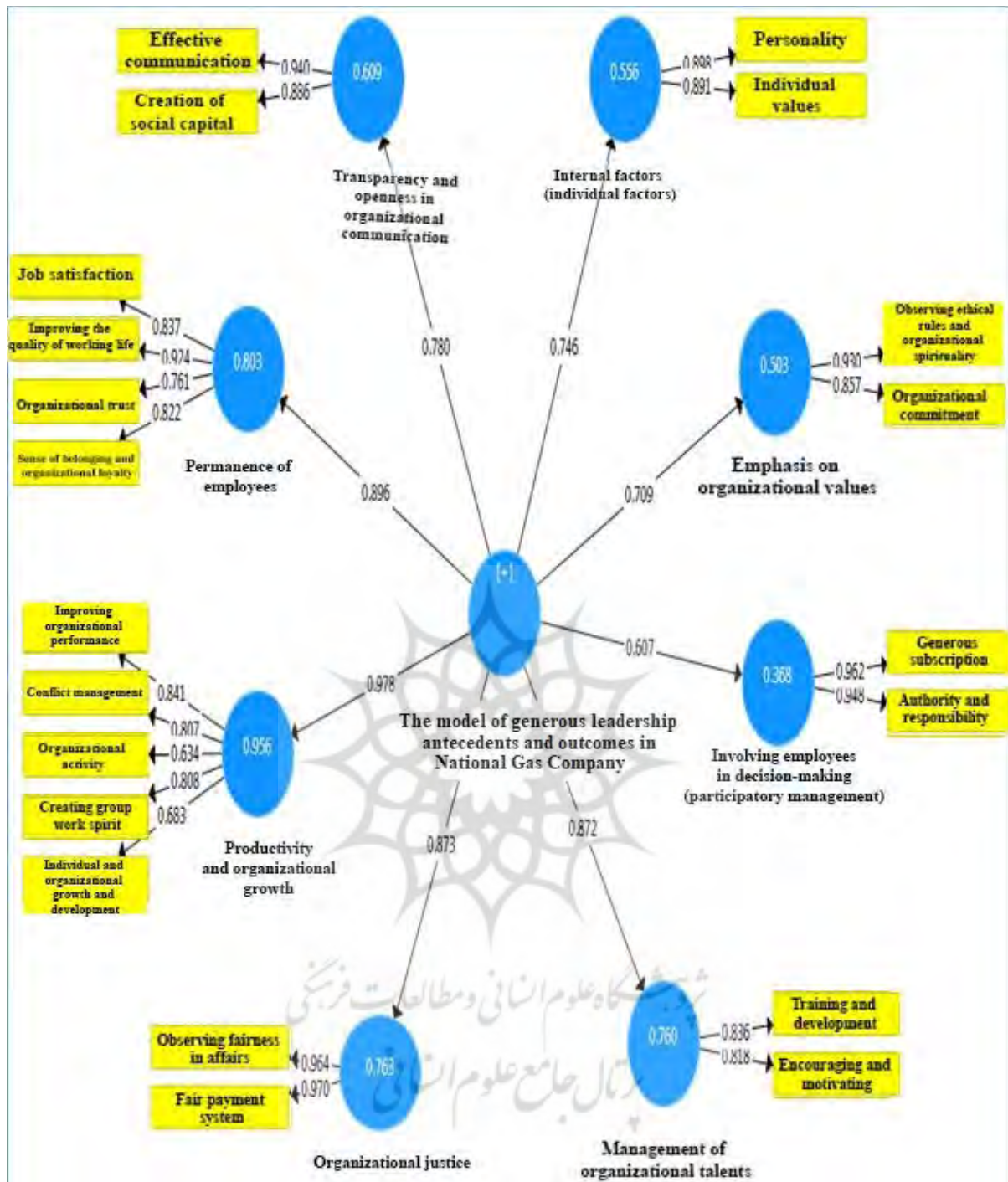


Figure 3

The research model in the standard state

5. Discussion

The findings of this study identified the antecedents and outcomes of generous leadership in the National Iranian Gas Company through a thematic analysis and subsequent structural-interpretive modeling. The study highlighted eight categories of antecedents and outcomes, including internal (individual) factors, emphasis on organizational values, participatory management, management of organizational talents, transparency, openness in organizational communication, employee retention, organizational productivity and growth, and organizational justice. These dimensions were analyzed

using the DIMTEL method, which revealed that participatory management had the highest impact on other dimensions, while organizational justice was most affected by them.

The antecedents and outcomes of generous leadership in National Iranian Gas Company were identified using the thematic analysis qualitative approach. These antecedents and outcomes were divided into eight categories of internal (individual) factors, emphasis on organizational values, involving employees in decision-making (participatory management), management of organizational talents, transparency and openness in organizational communication, employee retention, organizational productivity, growth, and organizational justice. Then, these antecedents and outcomes were investigated and analyzed using the structural–interpretive modeling approach and the DIMTEL method. The structural–interpretive modeling results revealed that employee participation in decision-making (participatory management) was an independent variable, while internal (individual) factors, emphasis on organizational values, and organizational talent management were the independent communicative variables; transparency and openness in organizational communication, employee retention, organizational productivity and growth, and organizational justice were the dependent variables. The DIMTEL results also revealed that employee participation in decision-making (participatory management) had the highest impact on the other factors (dimensions), and organizational justice was most affected by the other factors (dimensions). Further, involving employees in decisions had the highest interaction with the other factors (dimensions).

The findings of this study not only align with previous works but also provide additional insights. For instance, while studies of Davari et al. (2023) and Fardi Azar et al. (2022) emphasized the role of individual moral virtues and trust in leadership, our research extended this by highlighting participatory management as a critical factor in fostering generous leadership. This indicates that, in practice, generous leadership not only is rooted in individual characteristics but also relies on systemic factors such as decision-making inclusivity.

The results revealed that internal (individual) factors were among the antecedents of generous leadership in National Iranian Gas Company, which is consistent with the results of Davari et al. (2023), Fardi Azar et al. (2022), Alvani et al. (2014), and Massen et al. (2010). Davari et al. (2023) concluded that factors such as altruism, faith, and trust played a role in explaining spiritual leadership in the organization, and Fardi Azar et al. (2022) reported that faith and moral virtues were among the antecedents of spiritual leadership style. Massen et al. (2010) stated that the leader's individual characteristics were the causal factors of generous leadership. In another work, Emter and Dakrich introduced generosity as one of the eight common characteristics of great leaders.

Furthermore, studies such as those of Taheri et al. (2022) and Goleman et al. (2013) linked organizational values to leadership effectiveness. However, our findings highlighted that the integration of these values into daily practices, such as talent management and communication transparency, was crucial for achieving sustained organizational growth. While earlier research primarily focused on theoretical connections, this study empirically demonstrated the dynamics of these variables in the context of the National Iranian Gas Company.

The present study also showed that the factor of emphasis on organizational values was among the antecedents of generous leadership in National Iranian Gas Company, which is consistent with the results of Davari et al. (2023), Taheri et al. (2022), and Goleman et al. (2013). Davari et al. (2023) found that factors such as organizational commitment played a role in explaining spiritual leadership in the organization, and Taheri et al. (2022) concluded that the development of moral and Islamic values played a significant role in forgiveness-based leadership. In another work, Goleman et al. (2013)

reported that the existence of central cultural values such as justice and compassion in the organization could provide the conditions for forgiveness in the organization.

The present study also showed that productivity and organizational growth were among the outcomes of generous leadership in the National Iranian Gas Company, consistent with the results of Taheri et al. (2022), Ghanbari and Pourfarzad (2018), Rahimi Nejad and Golparvar (2019), Moradi (2020), Rajabpour and Shakeri (2016), Javadi et al. (2018), Al-Abedi et al. (2022), Dey et al. (2022), Sengupta et al. (2021), Nguyen et al. (2021), Yang et al. (2019), Yoshida et al. (2018), Horsman (2017), and Malik et al. (2016). Fardi Azar et al. (2022) concluded that moral climate and organizational health were the outcomes of spiritual leadership in an organization, and Rangriz and Khamechi (2022) claimed that employee empowerment, moral climate, and job performance were among the outcomes of ethical leadership in the organization. Ghanbari and Pourfarzad (2018) also reported that generous leaders were always trying to achieve the primary mission of the organization, and Taheri et al. (2022) indicated that innovation, organizational maturity, moral virtues, and individual development were among the outcomes of forgiveness-based leadership for hospitals. In another work, Rahimi Nejad and Golparvar (2019) concluded that there was a relationship between ethical leadership, supportive leadership, and organizational effectiveness. Moradi (2020) also reported a relationship between ethical leadership variables and ethical climate in the organization.

Rajabpour and Shakeri (2016) found a relationship between generous leadership and organizational learning, and Massen et al. (2010) concluded that meeting the growth needs of followers was one of the mechanisms of generous leadership. Further, Alvani et al. (2014) stated that using generosity in the organization could promote and improve the organizational climate and achieve organizational goals, and Al-Abedi et al. (2022) reported a relationship between generous leader behavior and organizational flexibility. In another work, Dey et al. (2022) reported that ethical leadership affected the performance of organizations. Sengupta et al. (2021) claimed that authentic leadership increased creativity among managers and employees, and Nguyen et al. (2021) found that ethical leadership improved organizational performance. Yang et al. (2019) concluded that servant leadership affected organizational innovation and employee empowerment, and Yoshida et al. (2018) claimed that various factors affected the development of human resources, among which leadership styles had the highest effect. Horsman (2017) also stated that servant leadership increased the performance and productivity of human resources, and Malik et al. (2016) asserted that ethical leadership influenced the performance of employees.

The present study also showed that organizational justice was one of the outcomes of generous leadership in National Iranian Gas Company, which is consistent with the results of Khalili et al. (2021), Pagheh et al. (2021), and Taghizadeh and Shokri (2014). Khalili et al. (2021) demonstrated that ethical leadership style affected organizational justice, and Pagheh et al. (2021) concluded that organizational justice in all leadership processes and procedures was one of the components of generous leadership in the organization. Manoochehri et al. (2017) reported a relationship between leadership style and organizational justice, and Taghizadeh and Shokri (2014) found that spiritual leadership influenced organizational justice.

Despite the consistency of our findings with prior studies, there are notable gaps in the literature that this work addresses. For example, most studies have treated leadership outcomes, such as productivity and justice, as isolated phenomena. Our results suggest that these outcomes should be interdependent and significantly influenced by participatory management. This finding underscores the need for a systems-thinking approach to leadership research, rather than a linear cause-and-effect perspective.

However, the scope of this study was limited to a single organization, which might constrain the generalizability of the results. Future research should investigate whether similar patterns are observable in organizations with different cultural or operational contexts.

5.1. Practical recommendations

To make these findings actionable for managers and organizations, we may consider the following:

- 1. Participatory decision-making:** Establish structured platforms where employees can contribute to strategic decisions. For instance, creating cross-functional committees to address organizational challenges can enhance inclusivity.
- 2. Emphasis on organizational values:** Integrate core values into performance evaluations, training programs, and leadership development initiatives to align employee behavior with organizational goals.
- 3. Transparency and communication:** Implement open-door policies and utilize digital platforms for real-time communication to foster trust and openness within the organization.
- 4. Talent management:** Develop targeted retention programs and personalized career paths to address individual employee needs and reduce turnover rates.

6. Conclusions and recommendations

Generous leadership mechanisms involve meeting followers' biological, belonging, and growth needs and creating outcomes for the leader, followers, and organization. Other qualitative or quantitative methods, such as the Delphi technique, should be used to identify the outcomes of generous leadership in National Iranian Gas Company. Further, the model of generous leadership outcomes should be designed for other organizations, and a model of organizational generosity should be developed for National Iranian Gas Company. A model of organizational generosity outcomes should be designed for National Iranian Gas Company and other organizations. Finally, barriers to the implementation of generous leadership in the National Iranian Gas Company should be analyzed.

7. Limitations

- The approach to conducting this study in the model development stage was qualitative, and different results may be achieved by conducting quantitative studies.
- Some experts did not cooperate or agree to participate in the interview due to job restrictions.
- Interviews were time-consuming, so the researcher waited for days to interview in some cases.
- Sampling was done with time and cost limitations. This issue can cause problems in the generalizability of the results.
- Some people did not have patience to answer the questionnaire's questions.

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Declaration of interest

None.

Nomenclature

DIMTEL	Decision-making trial and evaluation laboratory
SPSS	Statistical package for the social sciences

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