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## The Effect of Pension and Social Security Funds Mechanisms on Private Sector Engagement Within The KRI

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**Abstract:** Pension and social security systems are obviously fundamental to maintaining social and economic stability, especially in environments where the labour market is expanding further in the private sector and international institutions. In the Iraqi Kurdistan Region, there is an increasing need to investigate the role of the pension and security system in promoting force stability, commitment and participation, given the unequal levels of protection between the public and private sectors.

The overall objective of this study is to analyse the impact of social security and pension fund mechanisms by testing the mechanisms on four main dimensions: job security, transparency, life affordability and perceived value on labour force participation in private sector institutions.

Data were collected through an electronic questionnaire distributed to a stratified random sample of 348 eligible forms consisting of employees of private universities, international companies and local and international NGOs. Data were analysed by using SPSS and AMOS software and based on natural folds of data, confirmatory factor analysis (CFA), and structural equation modelling (SEM).

Based on the results of the study, it was found that the explanatory power of the model is high and the pension fund and social security mechanisms have a strong, statistically significant and meaningful positive effect on overall labour force participation. The results also revealed that the dimension of transparency was the strongest influence, followed by perceived value, job security, and while the fourth dimension, the life affordability, had a relatively lesser impact. And the findings tell us that improving the efficiency, transparency and sustainability of fund mechanisms significantly plays a role and impact in enhancing institutional trust and employee engagement.

The study concludes that there is a need to develop clear regulatory frameworks and effective retirement mechanisms in the private and international sectors, in order to support job stability and social sustainability in the Kurdistan Region of Iraq.

**Keywords:** Pension Fund Mechanisms, Social Security, Workforce Engagement, perceived value, Social Security, Transparency.

## أثر آليات صناديق المعاشات التقاعدية والضمان الاجتماعي على مشاركة القطاع الخاص في إقليم كردستان العراق

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**المستخلص:** تُعد أنظمة التقاعد والضمان الاجتماعي من الركائز الأساسية للحفاظ على الاستقرار الاجتماعي والاقتصادي، ولا سيما في البيئات التي يشهد فيها سوق العمل توسعاً متزايداً في القطاع الخاص والمؤسسات الدولية. وفي إقليم كردستان العراق، تبرز حاجة متزايدة لدراسة دور نظام التقاعد والضمان الاجتماعي في تعزيز استقرار القوى العاملة، والالتزام الوظيفي، والمشاركة في العمل، في ظل التفاوت الواضح في مستويات الحماية الاجتماعية بين القطاعين العام والخاص. يهدف هذا البحث بصورة عامة إلى تحليل أثر آليات صناديق التقاعد والضمان الاجتماعي من خلال اختبار تأثير هذه الآليات على أربعة أبعاد رئيسية، هي: الأمان الوظيفي، والشفافية، والقدرة على تحمل تكاليف الحياة، والقيمة المدركة، وذلك في سياق مشاركة القوى العاملة في مؤسسات القطاع الخاص. تم جمع البيانات باستخدام استبانة إلكترونية وُزعت على عينة عشوائية طبقية مكونة من (٣٤٨) استبانة صالحة للتحليل، شملت موظفين في الجامعات الخاصة، والشركات الدولية، والمنظمات غير الحكومية المحلية والدولية. وتم تحليل البيانات باستخدام برنامجي SPSS و AMOS، بالاعتماد على اختبارات طبيعة البيانات، والتحليل العاملي التوكيدي (CFA)، ونمذجة المعادلات الهيكلية (SEM). أظهرت نتائج الدراسة أن القدرة التفسيرية للنموذج كانت مرتفعة، وأن آليات صناديق التقاعد والضمان الاجتماعي لها تأثير إيجابي قوي وذو دلالة إحصائية ومعنوية على المشاركة الإجمالية للقوى العاملة. كما كشفت النتائج أن بُعد الشفافية كان الأكثر تأثيراً، يليه بُعد القيمة المدركة ثم الأمان الوظيفي، في حين كان بُعد القدرة على تحمل تكاليف الحياة الأقل تأثيراً نسبياً. وتشير النتائج إلى أن تحسين كفاءة وشفافية واستدامة آليات الصناديق يسهم بصورة كبيرة في تعزيز الثقة المؤسسية وزيادة انخراط العاملين. وتخلص الدراسة إلى ضرورة تطوير أطر تنظيمية واضحة وآليات تقاعد فعالة في القطاعين الخاص والدولي، بما يدعم الاستقرار الوظيفي والاستدامة الاجتماعية في إقليم كردستان العراق.

**الكلمات المفتاحية:** آليات صناديق التقاعد، الضمان الاجتماعي، انخراط القوى العاملة، القيمة المدركة، الشفافية.

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### Introduction

Pension and social security systems are the cornerstone of social and economic stability in any society. They are linked to the concept of “social protection”, which acts as an institutional guarantee of income continuity after retirement or in cases of work-related risks, illness and disability (Barr & Diamond, 2010; ILO, 2023; World Bank, 2019). As economies transition to more diverse employment patterns, the need for pension and social security mechanisms that are able to adapt to new labor market realities increases. This includes workers in private and international institutions (multinational corporations, international agencies, NGOs and private universities). The expansion of the private and international sectors not only creates jobs, but also poses a dual challenge: to guarantee workers’ rights and to create a sustainable and motivating working environment (ILO, 2021).

In recent years, Iraq in general, and the Kurdistan Region of Iraq in particular, has witnessed a significant expansion of the presence of private and international institutions and their reliance on them to create and deliver more services, whether in higher education (private universities) or in development projects and humanitarian aid. While this expansion strengthens the local economy, it also highlights an important issue regarding access to effective, fair and transparent pension and social security mechanisms for employees of these institutions. In many developing environments, there are significant differences between the public and private sectors when it comes to retirement support. Unlike employees in the public sector who enjoy clearer and more stable arrangements, in the private sector and international institutions and companies they may face ambiguity in benefits, weaknesses in long-term guarantees and inconsistencies in contribution mechanisms

In the perspective of organizational behavior and human resource management, retirement is not just a “perks” added to pay; Rather, it is an important factor that influences the decision to stay with or work in an organization. In addition, it affects their sense of security, stability, commitment, and willingness to invest in their skills and performance within the organization (Meyer & Allen, 1997; Rhoades & Eisenberger, 2002). This concept defines workforce commitment and engagement as a state of positive relationship with work and the organization that is expressed through trust, commitment, and a willingness to try and persevere. Because the concept of labor force participation is multidimensional, this study discusses it through four practical dimensions appropriate to the private and international sector environment in the Kurdistan Region. Job security is defined as the employee’s perception of job stability and rights; Transparency of policies, procedures and information related to rights and obligations, the life affordability that reflects the employee's sense that income and benefits – including pension arrangements – will help build a stable life, and perceived value is an overall assessment of the benefits of employment versus the costs and risks (Kahn, 1990; Cropanzano & Mitchell, 2005). The problem with the study stems from the fact that many pension arrangements in the private and international sectors may be inconsistent or unified, not fully transparent, or vary from institution to institution. This leads to differences in employees’ perceptions of security, fairness and value, ultimately affecting their level of engagement (ILO, 2021; OECD, 2018). Therefore, this paper seeks to answer the following key question

The main research question of whether pension and social security mechanisms affect labor force participation in international and private institutions in the region leads to secondary questions related to measuring the impact of these mechanisms on each of the four dimensions of participation. The research contributes to three aspects and dimensions: the first is the cognitive orientation, which directs attention to the operational community that is often underemphasized in the local literature, namely the workforce in international and private institutions in the Kurdistan Region; The second is a methodological approach through the use of both structural equation modeling (SEM) and confirmatory factor analysis (CFA) that are able to examine complex casual relationships and social security in the labor market (Hair et al., 2019; Klein, 2016).

The second part of the paper includes literature review, theoretical framework and hypothesis development; Section 3 presents the mythology, measurement tools and statistical procedures and in Section 4 the results which describe, measure and test the hypotheses.; section 5 is devoted to discussing the results in light of the literature and regional context; and the final section discusses the findings, implications, recommendations, and limitations of the study and suggestions for future research.

## **1<sup>st</sup>: (Literature Review and Theoretical Framework)**

### **1- Pension and Social Security Fund (PS) Mechanisms**

The mechanisms of pension and social security funds refer to a set of rules and procedures such as determining the rules of rights, managing contributions, allotting reports, complaint mechanisms, investing resources, guaranteeing stability or continuity and fairness among participants (Barr & Diamond, 2010; ILO, 2021). These mechanisms are gaining importance because they mark the practical translation of laws and legislation into tangible procedures that the employee experiences and feels on a daily basis, particularly in the private and international sector where arrangements may vary between institutions or between a national system and local institutional arrangements (OECD, 2021).

Comparative literature confirms that transparency and disclosure, financial sustainability, good governance, and broad coverage are essential determinants of pension system performance, directly impacting beneficiary confidence and the system's ability to meet its long-term obligations (World Bank, 2019; ISSA, 2020). Multiple international reports indicate that weak governance or a lack of regular disclosure increases the risk of mismanagement and undermines institutional trust, even in cases where formal legislation exists (OECD, 2018).

In the context of changing or expanding labor markets in private and international employment, clarity of mechanisms, access to information and the ability to monitor and hold accountable become key elements to reduce worker uncertainty (Barr, 2012). Recent literature therefore emphasizes that the effectiveness of fund mechanisms is measured not only by the existence of rules, but also by their fair and consistent enforcement, the existence of effective communication channels and information systems where workers can track their entitlements and predict future benefits (World Bank, 2023). Comparative evidence suggests that improvements in these mechanisms are often associated with higher levels of trust, reduced long-term financial anxiety, and support for social sustainability.

## **2- Labor Force Engagement (PR) and its Dimensions**

Workforce engagement is a behavioral-organizational concept that reflects the degree to which an employee is cognitively, emotionally, and behaviorally connected to his or her job and organization. It is expressed through enthusiasm, willingness to try harder, commitment and desire to persevere. The theoretical roots of the concept lie in the idea that engagement depends on the availability of psychological and organizational conditions that allow the individual to “establish herself” in her job role (such as meaning, security, and support). (Kahn, 1990; Schaufeli et al., 2002)

Modern engagement models emphasize that workers do not evaluate the employment relationship solely based on salary or short-term benefits, but rather within a comprehensive package that includes fairness, transparency, stability, and future prospects, especially in environments characterized by high risk or job uncertainty (Meyer & Allen, 1997; Cropanzano & Mitchell, 2005). From this perspective, retirement and social security arrangements are an essential part of the overall value of employment; the more transparent and reliable the mechanisms of the funds become, the higher the worker’s perception of security, fairness and value, and this is reflected in organizational outputs such as satisfaction, retention and engagement (Rhoades & Eisenberger, 2002).

In line with the nature of the study sample of international and private institutions in the KRG, measuring labor force participation across four dimensions (job security, transparency, affordability, and perceived value) is appropriate pensions used in the international literature (OECD, 2021; International Labor Organization, 2023).

### **A. Job Security**

Job security depends on an employee’s perception of job stability, guaranteed rights, and reduced future risks. It extends from the concept of job continuity to include assurances about income and protection after retirement (Greenhalgh & Rosenblatt, 1984; De Witte, 1999). In the context of private and international employment, this dimension is influenced by the clarity and reliability of pension arrangements. An employee who sees a clear and traceable system of contributions and benefits has a higher sense of stability and trust, whereas ambiguity or weak guarantees lead to job anxiety that weakens contributions (ILO, 2021).

### **B. Transparency**

Transparency is defined as the clarity of policies and procedures, the availability and accessibility of information, and the effectiveness of inquiry responses and complaint mechanisms (Rawlins, 2008). In the area of pensions and social security, transparency is embodied in the disclosure of contributions and employer contributions, eligibility criteria, periodic reports and audit results. The governance literature indicates that transparency is an essential gateway to building institutional trust and reducing perceptions of mismanagement or manipulation (OECD, 2018; ISSA, 2019).

### **C. Life Affordability**

This dimension measures the degree to which an employee feels that his or her income and benefits package—including a pension—supports them in building a stable life amid cost-of-living fluctuations. Its relevance to fund mechanisms is that the effectiveness, adequacy, and sustainability

of a fund reduce long-term financial anxiety and support post-retirement life expectancies. In volatile economic environments, long-term security becomes an important compensating factor that enhances the quality of career decisions and promotes work engagement (Barr, 2012).

#### D. Perceived Value

Perceived value represents an employee’s overall assessment of what he or she receives in return for his or her effort, time, and the risks and opportunities that come with it. Pension benefits are included in this assessment as a “deferred return,” which increases the attractiveness of the organization and promotes a sense of fairness. (Blau, 1964; Homans, 1958) When pension fund mechanisms are transparent and managed in accordance with sound governance principles, employees become more aware that benefits are commensurate with contributions and that the system provides a fair return, which increases loyalty and engagement and reduces the desire to switch. (Cropanzano & Mitchell, 2005)

### 3- Theoretical connection and hypothesis development

The impact of pension and social security (PS) mechanisms on workforce engagement (PR) can be explained through three interrelated pathways. The first path is institutional trust: the clearer the eligibility rules, the more information is available, and the more traceable the procedures are, the more predictable the system becomes, which enhances trust and reduces anxiety. In this case, retirement is transformed from a “vague promise” into an “institutional guarantee” that reassures the worker, thus supporting his engagement. (OECD, 2018; World Bank, 2019).

The second pathway is justice and social exchange: when an employee perceives that the organization/system provides long-term protection and practices transparency and accountability, a sense of fairness and the understanding that the relationship is not short-term develops, fostering corresponding behaviors such as commitment, engagement, and a willingness to exert extra effort. Governance literature supports the idea that disclosure, oversight, and avoidance of conflicts of interest reduce perceptions of injustice and increase employee acceptance of the system.

The third path is reducing risk and financial stress: the absence of guarantees or the weak financial sustainability of pension funds increases uncertainty about post-retirement income, which accumulates psychological and financial pressure and negatively impacts engagement. Conversely, effective mechanisms (such as clear rules, sustainable funding, and integrated social security) enhance workers' sense of long-term financial security and positively affect the four dimensions of engagement.

Based on this connection, the study hypotheses and conceptual model are formulated as follows:

H<sub>1</sub>: There is a statistically significant relationship/effect between pension and social security (PS) mechanisms and workforce engagement (PR) within international and private institutions in the Kurdistan Region of Iraq.

- o H<sub>1a</sub>: PS significantly affects job security (JO).
- o H<sub>1b</sub>: PS significantly affects transparency (TR).
- o H<sub>1c</sub>: PS significantly affects affordability (LI).
- o H<sub>1d</sub>: PS significantly affects perceived value (PE).

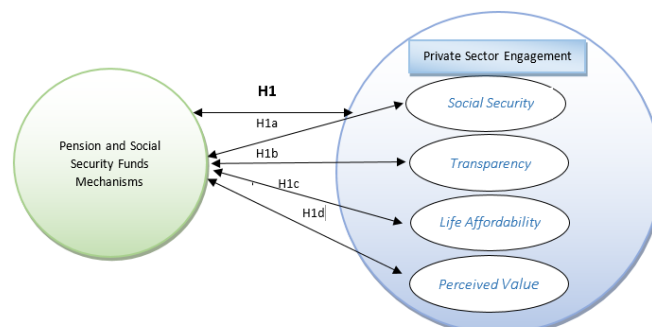


Figure (1): Hypothesis Model

## **2<sup>nd</sup>: Research Methodology**

### **1- Research design**

The study adopted a descriptive-analytical approach within a quantitative framework to test causal hypotheses among the study variables. This design is suitable for the study's main objective, which is to measure the impact of an underlying independent variable—the mechanisms of pension and social security funds—on a complex underlying dependent variable—labor engagement—with its four dimensions (job security, transparency, affordability, and perceived value).

This approach was chosen due to the need for advanced analytical techniques capable of handling underlying variables and their interrelationships, as provided by Structural Equation Modeling (SEM) and Confirmatory Factor Analysis (CFA). This design also allows for testing the validity of the measurement model before proceeding to structural model testing, thus enhancing methodological rigor and the reproducibility of the study in similar contexts.

### **2- Population and Sampling**

The study population consists of the workforce within international and private institutions operating in the Kurdistan Region of Iraq, and includes four main categories:

Employees of international companies, Employees of international agencies, Employees of private universities, and Employees of local and international non-governmental organizations. Because these groups differ in terms of employment patterns, organizational structures, and benefit and retirement systems, stratified random sampling was adopted. This method is suitable when the population is heterogeneous, as it ensures more accurate representation of each group and reduces selection biases.

The sample size was determined in accordance with the requirements of confirmatory factor analysis and structural equation modeling, as the methodological literature indicates the need for a sufficient sample size to ensure the stability of statistical estimates and the accuracy of conformance indices. The sample size was justified according to the (number of items × 5 to 10) rule, in addition to the common criteria in SEM studies, with the emphasis that the size adopted in this study is suitable for conducting CFA and SEM with a high degree of reliability.

### **3- Data Collection Instrument**

The study relied on an electronic questionnaire as the main tool for collecting data, and it was distributed via the (Google Forms) platform to facilitate access to the sample members, especially in light of the geographical spread of international and private institutions and the diversity of their employees' work locations. The questionnaire used the seven-point Likert scale to measure the degree of agreement of the respondents with the study statements (1 = strongly disagree, 7 = strongly agree), which is a common scale in behavioral and organizational studies, and is characterized by its ability to capture subtle differences in individuals' perceptions.

The questionnaire included two main axes:

- Pension and social security funds mechanisms (independent variable): It included items that measure the clarity of procedures, ease of access to information, fairness in benefits, long-term sustainability and reassurance, and transparency of management.
- Workforce engagement (dependent variable): It was measured across four dimensions, each of which was allocated a set of items: Job security (JO), Transparency (TR), Affordability of living (LI), and Perceived value (PE).

The items were coded with clear codes (JO1–JO5, TR1–TR5, LI1–LI5, PE1–PE5, PS1–PS8) to facilitate statistical analysis and inclusion in CFA and SEM models.

#### **4- Instrument reliability and validity**

To verify the instrument's validity, internal consistency validity was used by calculating the correlation coefficients between each item's score and the total score for its respective dimension, as well as with the total score for the axis. This procedure aims to ensure that the items consistently measure the same theoretical concept.

The reliability of the instrument was verified using Cronbach's Alpha coefficient for each dimension individually, as well as for the main axes and the questionnaire as a whole. This coefficient is a key indicator of measurement stability and internal consistency, with values exceeding 0.70 being statistically acceptable in social and behavioral studies.

The reliability values showed that all dimensions and axes exceeded acceptable limits, indicating that the measurement instrument has a high degree of reliability, and its results can be relied upon in subsequent analysis without methodological concerns regarding measurement instability.

#### **5- Statistical Processes and Analysis Tools**

The data were analyzed using two integrated statistical packages:

- IBM SPSS v27 for descriptive statistics, data nature tests, and validity and reliability checks.
- AMOS v24 for confirmatory factor analysis (CFA) and structural equation modeling (SEM).

#### **The statistical analyses included the following:**

- 1- Calculating the skewness and kurtosis coefficients to verify the nature of the data distribution and its adherence to a normal distribution, as a prelude to using parametric tests.
- 2- Using frequencies and percentages to describe the demographic characteristics of the sample.
- 3- Calculating the means, standard deviations, percentages of agreement, and coefficient of variation to determine the trends in responses and their degree of homogeneity.
- 4- Test internal consistency validity using simple correlation coefficients.
- 5- Test instrument reliability using Cronbach's alpha coefficient.
- 6- Use the One-Sample T-Test to compare response means with the scale's neutral value.
- 7- Apply the KMO and Bartlett tests to verify the data's suitability for factor analysis.
- 8- Use CFA and SEM to test the measurement model and the structural relationships between variables.

#### **6- Measurement model and structure model**

Before testing the hypotheses, a measurement model (CFA) was first estimated to verify the suitability of the items to their dimensions, the significance of the labor loads, and the achievement of approved conformity indicators (such as CFI, TLI, RMSEA,  $\chi^2/df$ ). After confirming the validity of the measurement model, the structural model (SEM) was used to test the influence pathways between pension and social security fund mechanisms and the dimensions of workforce engagement, and to determine the strength and statistical significance of these pathways.

### **3<sup>rd</sup>: RESULTS AND FINDINGS**

#### **1- Descriptive Statistics**

To achieve the study's objectives and test its hypotheses, an electronic questionnaire was used and distributed to a sample of employees in international and private institutions in the Kurdistan Region of Iraq, including private universities, international companies, international and local non-governmental organizations, in addition to international agencies. After excluding incomplete responses, the number of questionnaires valid for statistical analysis was (348) questionnaires, which is a sufficient and appropriate sample size for conducting descriptive and advanced analyses, including confirmatory factor analysis (CFA) and structural equation modeling (SEM).

The first section of the questionnaire included a set of key demographic variables, including gender, age, educational level, years of experience, and type of organization, with the aim of describing the characteristics of the sample members and highlighting the extent of their institutional and functional diversity. The results showed that the majority of the sample were male (73.85%) compared to female (26.15%), reflecting the prevailing demographic composition of international and private institutions within the region. The highest percentage of respondents fell within the 35–44 age group (43.97%), followed by the 25–34 age group (27.59%), indicating that most of the sample belonged to an age group representing job stability and professional maturity.

Regarding educational level, the results showed that those with a bachelor's degree constituted the largest percentage (36.78%), followed by those with a master's degree (34.20%) and then a doctorate (16.95%), which reflects a good scientific level that supports the reliability of the data and the quality of the responses. As for years of experience, the (11-20 years) category came in first place with a percentage of (35.63%), followed by the (6-10 years) category with a percentage of (25.86%), which indicates that the majority of respondents have sufficient professional experience to evaluate the mechanisms of pension and social security funds and their implications in a conscious manner. The institutional distribution also showed clear diversity, with employees of non-governmental organizations constituting the highest percentage (34.77%), followed by international companies (31.61%) and then private universities (27.87%), which enhances the validity of the sample and its representation of the work environments targeted in the study.

## **2- Descriptive statistics for study variables**

The main variables of the study were described based on a set of descriptive statistics, including the arithmetic mean, standard deviation, percentage of agreement, and coefficient of variation, with the aim of determining the trends in the responses of the sample members and measuring the degree of homogeneity of their opinions on the two axes of the study. Based on the seven-point Likert scale, the arithmetic means were interpreted according to the approved rating levels; values within the range (3.57–4.42) indicate a neutral trend, while values higher than (4.43) reflect a tendency towards agreement.

The results showed that the private sector workforce engagement variable and its four dimensions were generally neutral. The job security dimension recorded the highest overall mean score of 4.260 and an agreement rate of 60.86%, indicating a moderate understanding of the role of retirement and social security mechanisms in promoting job stability, along with an acceptable degree of consensus. The transparency dimension achieved an overall average of (4.206) and an agreement rate of (60.09%), reflecting a state of relative uncertainty among respondents regarding the clarity and availability of information related to pension rights.

In contrast, life affordability came in last place, with a mean score of (3.882) and an agreement rate of (55.46%), indicating a relative weakness in the perception of the adequacy of retirement benefits to cover living requirements after retirement, in addition to a relative high divergence of opinions regarding this dimension. As for the perceived value, it recorded an overall average of (4.189) with an agreement rate of (59.84%), within the neutral trend, indicating a balanced assessment of the returns achieved from pension systems compared to contributions and employment obligations.

Regarding the mechanism of pension and social security funds, the results showed that the overall arithmetic mean was (4.105) and the agreement rate was (58.65%), which indicates that the respondents' assessment of the effectiveness of these mechanisms tends towards neutrality. This level reflects a state of relative uncertainty regarding the efficiency, transparency, and sustainability of the mechanisms in place, despite the emergence of some positive indicators related to the integration of social security with pension systems and support for the long-term sustainability of the system.

In general, these results indicate that the sample's perceptions of both the pension and social security fund mechanisms and the level of workforce engagement in the private sector remains at an average level, which highlights the need to enhance the clarity and efficiency of pension policies in

order to improve employee engagement and job stability within international and private institutions in the Kurdistan Region of Iraq.

**Table (1):** Descriptive Statistics of Study Variables

Variable / Dimension	Mean	Standard Deviation	Agreement (%)	Coefficient of Variation (%)	Evaluation Direction
<b>Pension &amp; Social Security Fund Mechanisms (PS)</b>	4.105	0.982	58.65	23.92	Neutral
<b>Job Security</b>	4.260	0.915	60.86	21.47	Neutral
<b>Transparency</b>	4.206	0.989	60.09	23.51	Neutral
<b>Life Affordability</b>	3.882	1.168	55.46	30.09	Neutral
<b>Perceived Value</b>	4.189	0.996	59.84	23.79	Neutral

### 3- Data Nature Test and Preliminary Tests (Skewness & Kurtosis and One-Sample T Test)

Before proceeding to apply confirmatory factor analysis (CFA) and structural equation modeling (SEM), a series of preliminary tests were conducted to verify the suitability of the data for parametric statistical analysis. This included testing the nature of the distribution using the skewness and kurtosis coefficients, in addition to the One-Sample T Test to determine the direction of the respondents' responses compared to the neutral value of the scale (4).

The results of the skewness and kurtosis tests showed that all values for the labor force engagement variable ranged from -1.094 to -0.437 for skewness and from -0.973 to 1.149 for kurtosis, while the skewness values for the pension and social security funds mechanism variable ranged from -0.944 to -0.658, and the kurtosis values ranged from -0.436 to 0.518. All these values fall within the statistically acceptable limits ( $\pm 1.96$ ), indicating that the data follow a distribution close to normality, which supports the use of CFA and SEM techniques.

Regarding the One-Sample T-Test, the results showed statistically significant differences favoring agreement on some statements, such as statements PS2 ( $t = 4.10$ ,  $p = 0.000$ ) and PS5 ( $t = 3.80$ ,  $p = 0.000$ ) within the "Mechanisms of the Boxes" dimension, as well as statements JO3 ( $t = 7.48$ ), JO1 ( $t = 4.14$ ), and JO4 ( $t = 4.69$ ) within the "Job Security" dimension. In contrast, the remaining statements tended toward neutrality, reflecting a relative variability in the respondents' perceptions and justifying the move to structural analysis to examine the causal relationships between the variables.

**Table (2):** the results of the data nature test and the One-Sample T-Test

Variable / Dimension	Skewness (Min–Max)	Kurtosis (Min–Max)	One-Sample t-Test Values	Significance Level	Conclusion
<b>(PS)</b>	-0.944 → -0.658	-0.436 → 0.518	PS2 = 4.10, PS5 = 3.80	$p = 0.000$	Neutral tendency with partial acceptance
<b>(JO)</b>	-1.061 → -0.607	-0.403 → 1.149	JO3 = 7.48, JO1 = 4.14, JO4 = 4.69	$p = 0.000$	Partial agreement
<b>(TR)</b>	-1.069 → -0.812	0.099 → 0.670	TR1 = 3.10, TR2 = 3.79, TR4 = 2.75, TR5 = 2.91	$p < 0.05$	Partial agreement
<b>(LI)</b>	-0.607 → -0.437	-0.973 → -0.563	LI5 = -2.82	$p = 0.005$	Partial disagreement
<b>(PE)</b>	-1.094 → -0.790	0.119 → 0.639	PE1 = 3.75, PE3 = 3.69, PE4 = 2.72	$p = 0.000$	Partial agreement

### 4- Data suitability for factor analysis (KMO & Bartlett)

To ensure the suitability of the data for confirmatory factor analysis (CFA) and structural equation modeling (SEM), the Kaiser-Meyer-Olkin (KMO) test and Bartlett's Test of Sphericity were applied. The results showed that the KMO values for all study dimensions were high and exceeded

the minimum acceptable threshold (0.50), reaching (0.938) for the overall private sector engagement index and (0.913) for the pension and social security fund mechanisms axis. Sub-values ranged between (0.803–0.845) for the engagement dimensions, indicating an adequate sample size and the suitability of the data for factor analysis.

Bartlett’s test showed high statistical significance at the ( $p = 0.000$ ) level for all dimensions and axes, as the chi-square values were high (e.g.,  $\chi^2 = 2906.729$  for private sector involvement and  $\chi^2 = 1015.533$  for fund mechanisms), which confirms that the correlation matrix is not an identity matrix, and that the relationships between items are statistically sufficient to conduct CFA and SEM with high methodological confidence.

**Table (3):** Results of the KMO and Bartlett tests for the study variables

Dimension / Construct	No. of Items	KMO	Bartlett’s $\chi^2$	df	Sig.
Job Security	5	0.803	339.465	10	0.000
Transparency	5	0.821	446.919	10	0.000
Life Affordability	5	0.845	586.597	10	0.000
Perceived Value	5	0.838	546.768	10	0.000
Private Sector Engagement (Overall)	20	0.938	2906.729	190	0.000
Pension & Social Security Fund Mechanisms	8	0.913	1015.533	28	0.000

### 5- Confirmatory Factor Analysis (CFA) Results

Confirmatory factor analysis (CFA) was performed using AMOS v24 software to verify the validity of the standard model and the suitability of the questionnaire items in representing the underlying variables of the study. These variables were the private sector workforce engagement (PR) axis with its four dimensions and the pension and social security fund mechanisms (PS) axis. The CFA results showed that all standard regression factor loadings were within statistically acceptable limits, exceeding the recommended minimum value (0.40). The actual values ranged between 0.59 and 0.78 for the workforce engagement dimensions and between 0.59 and 0.75 for the fund mechanisms axis, with high statistical significance for all items ( $p < 0.001$ ). This confirms the consistency of the items with the dimensions they measure.

Regarding model fit, the labor force engagement model achieved good fit indicators, with a value of ( $\chi^2/df = 2.115$ ), a comparative fit index (CFI = 0.934), and a Tucker-Lewis index (TLI = 0.924), while the RMSEA index registered a value of (0.057), all within statistically acceptable limits. The pension and social security mechanisms model also showed a high level of fit, with values of ( $\chi^2/df = 2.285$ ), (CFI = 0.974), (TLI = 0.964), and (RMSEA = 0.061), indicating the quality of the standard model and its suitability for structural relationship testing (SEM).

**Table (4):** Confirmatory Factor Analysis (CFA) Results

Construct	Factor Loading Range ( $\lambda$ )	$\chi^2/df$	CFI	TLI	RMSEA
(PR)	0.59 – 0.78	2.115	0.934	0.924	0.057
(PS)	0.59 – 0.75	2.285	0.974	0.964	0.061

### 6- Structural Model (SEM) Results and Hypothesis Testing

After verifying the validity of the measurement model through confirmatory factor analysis (CFA) and achieving acceptable conformity indicators, the structural model (SEM) was estimated to test the impact of pension and social security (PS) fund mechanisms on private and semi-private sector (PR) workforce engagement and its four dimensions. The results of the structural model showed a strong and statistically significant positive effect of the fund mechanisms on the overall labor force engagement variable, with a standard regression coefficient ( $\beta = 0.906$ ) at a significance level of ( $p < 0.001$ ), and a high explanatory power of ( $R^2 = 0.821$ ), indicating that the fund mechanisms explain about (82.1%) of the variance in the level of labor force engagement, and thus the main hypothesis H2 is accepted.

At the sub-hypothesis level, the results showed that the fund mechanisms had a statistically significant positive effect on all four dimensions of labor force engagement. Specifically, their effect on job security was significant ( $\beta = 0.807$ ,  $p < 0.001$ ) with an explanatory power of ( $R^2 = 0.652$ ), on transparency ( $\beta = 0.861$ ,  $p < 0.001$ ) with ( $R^2 = 0.742$ ), on affordability ( $\beta = 0.715$ ,  $p < 0.001$ ) with ( $R^2 = 0.511$ ), and finally on perceived value ( $\beta = 0.859$ ,  $p < 0.001$ ) with ( $R^2 = 0.737$ ). These results indicate that enhancing the efficiency, transparency, and sustainability of pension and social security fund mechanisms contributes substantially to raising job security levels, promoting transparency, improving the ability to cope with the costs of living, and increasing the perceived value of employees in private and semi-private sector institutions. Thus, hypotheses H2a, H2b, H2c, and H2d are accepted.

**Table (5):** Results of the structural model (SEM) and hypothesis testing H2–H2d

Hypothesis	Path	Standardized $\beta$	C.R.	p-value	R <sup>2</sup>	Result
<b>H2</b>	PS → Private Sector Engagement (overall)	0.906	11.375	0.000	0.821	Supported
<b>H2a</b>	PS → Job Security	0.807	10.062	0.000	0.652	Supported
<b>H2b</b>	PS → Transparency	0.861	11.330	0.000	0.742	Supported
<b>H2c</b>	PS → Life Affordability	0.715	10.251	0.000	0.511	Supported
<b>H2d</b>	PS → Perceived Value	0.859	12.478	0.000	0.737	Supported

#### 4<sup>th</sup>: Discussion

This study aims to interpret the results of the Structural Equations Model (SEM) and analyze its theoretical and applied implications by linking the impact of pension and social security fund mechanisms to the four dimensions of labor force engagement, taking into account the institutional and economic specificities of the Kurdistan Region of Iraq. The results show that fund mechanisms are a significant determinant of labor force engagement, both at the macro level and at the sub-dimension level, which aligns with the theoretical framework based on corporate governance and social contract theory.

##### 1- Fund Mechanisms and Job Security

The SEM results demonstrated a statistically significant positive effect of pension and social security mechanisms on job security ( $\beta = 0.807$ ,  $p < 0.001$ ), with an explanatory power of ( $R^2 = 65.20\%$ ). This strong effect indicates that the clarity and sustainability of pension systems enhance employees' sense of job security and reduce their future income anxieties after retirement. This finding aligns with the literature confirming that a reliable pension system reduces job insecurity and strengthens institutional commitment, particularly in the non-governmental sector, which often lacks pension guarantees comparable to the public sector. In the context of Iraqi Kurdistan, where many employees in international and private institutions rely on flexible employment contracts, weak or nonexistent pension mechanisms can erode institutional trust, thus explaining the sensitivity of this dimension to the effectiveness of pension funds.

##### 2- Fund Mechanisms and Transparency

The results showed that pension and social security fund mechanisms have a strong positive impact on transparency ( $\beta = 0.861$ ,  $p < 0.001$ ), with an explained variance of ( $R^2 = 74.20\%$ ), one of the highest values recorded among the four dimensions. This strong correlation reflects the fact that employees link the effectiveness of the funds to the clarity of procedures, the availability of information, and the fairness of resource management.

This finding supports the findings of good governance studies, which argue that transparency is not merely an ethical value, but an institutional mechanism that fosters trust and sustainability. In the Kurdistan Region's business environment, where levels of institutional disclosure vary from one organization to another, trust funds emerge as a regulatory tool that can address trust gaps,

particularly within NGOs and multinational corporations operating under multinational regulatory frameworks.

### **3- Fund mechanisms and life affordability**

Although the statistical effect of pension fund mechanisms on affordability was significant ( $\beta = 0.715$ ,  $p < 0.001$ ), this dimension had the lowest explanatory power ( $R^2 = 51.10\%$ ). This result indicates that the effectiveness of pension funds, while important, is not sufficient on its own to guarantee that workers can cope with the cost of living after retirement. This reflects the nature of macroeconomic challenges, such as inflation and rising housing and healthcare costs, which are beyond the control of pension systems alone. This finding aligns with the literature emphasizing that the adequacy of retirement benefits depends on the integration of social and economic policies, not solely on the efficiency of fund management. In the context of Iraqi Kurdistan, this problem is exacerbated by the limited scope of comprehensive social protection systems in the private sector.

### **4- Fund Mechanisms and Perceived Value**

The study results showed a strong and significant effect of pension and social security mechanisms on employees' perceived value ( $\beta = 0.859$ ,  $p < 0.001$ ), with an explanation ratio of 73.70% ( $R^2 = 73.70$ ). This means that employees view effective pension schemes as part of the overall value package offered by the organization, not merely as a deferred benefit. This finding supports the perspective of internal marketing and strategic human resource management, which posits that long-term benefits enhance organizational loyalty and psychological engagement. In the international and regional private sector work environments, where organizations compete to attract talent, pension mechanisms become a significant competitive factor influencing employees' evaluation of the quality of the contractual relationship.

### **5- Contextual Links and Institutional Implications in the Kurdistan Region of Iraq**

The findings collectively reveal that pension and social security funds are not merely financial instruments, but rather constitute an institutional structure that profoundly influences the behaviors and attitudes of the workforce. In the context of the Kurdistan Region of Iraq, where the private and international sectors are expanding significantly while unified pension frameworks remain limited, the importance of developing clear and transparent regulatory frameworks for these funds is paramount. This will enhance trust, stability, and employment engagement. The findings also indicate the need for an integrated approach that combines pension system reform with labor market policies and social protection measures to ensure a sustainable impact on worker well-being and institutional engagement.

## **5<sup>th</sup>: Conclusions, Implications, and Recommendations**

### **1- Conclusions**

This study aimed to examine the impact of pension and social security fund mechanisms on workforce engagement within international and private institutions in the Kurdistan Region of Iraq, using a quantitative model based on structural equation modeling (SEM). The results showed that these fund mechanisms are a significant determinant of employee engagement, demonstrating a strong and statistically significant positive effect of pension and social security fund mechanisms on private sector engagement as a whole, with a high explanatory power of the model ( $R^2 = 82.10\%$ ).

At the sub-dimensional level, the results showed that the strongest impact of fund mechanisms was on transparency, followed by perceived value, then job security, and finally affordability. This suggests that employees place greater importance on the clarity of procedures, access to information, and fairness in fund management than on purely financial aspects related to covering living expenses after retirement.

The descriptive statistics also revealed that respondents' assessment of the effectiveness of the funds' mechanisms and the four dimensions of engagement was generally within the neutral trend,

reflecting a state of institutional uncertainty and a gap between the normative expectations of employees and the practical reality of these mechanisms in international and private institutions within the region.

These results confirm that the issue of retirement and social security in the private and international sector remains a sensitive element in shaping job experience and organizational engagement, and requires deeper institutional and organizational development to enhance confidence and job stability.

## **2- Theoretical implications**

This study contributes to the theoretical literature by expanding the framework for analyzing labor force engagement to include social protection variables, particularly pension and social security mechanisms, as a direct determinant of organizational behavior rather than merely a secondary compensatory benefit. The study also presents an explanatory model that links the concepts of institutional trust, organizational justice, and social exchange in explaining the relationship between the effectiveness of fund mechanisms and employee engagement.

The results add empirical evidence from a transitional economic context, namely the Kurdistan Region of Iraq, which strengthens the generalizability of the theoretical framework to similar environments suffering from disparities between the public and private sectors in levels of social protection.

## **3- Practical Implications**

At the practical level, the findings indicate that international and private institutions can enhance workforce engagement not only by improving wages or the immediate work environment, but also by developing clear, transparent, and sustainable retirement and social security mechanisms. Transparency emerges as the most influential dimension, meaning that improving disclosure channels, clarifying entitlement and contribution terms, and publishing reports related to fund management can quickly translate into increased trust and engagement levels.

The results also show that enhancing the perceived value of retirement benefits contributes to increasing the attractiveness of the organization and retaining talent, which is crucial in competitive environments that rely on qualified human capital.

## **4- Suggestions**

Based on the results of the study, the researcher recommends the following:

### **A. recommendations for decision-makers and regulatory agencies**

- Establish a regulatory framework or guidance that specifies minimum pension coverage requirements for employees in private and international entities within the region.
- Enhanced oversight of the transparent management of pension and social security funds, requiring institutions to provide simplified and easily understood periodic reporting.
- Develop formal mechanisms for the prompt and efficient resolution of disputes relating to pension entitlements.

### **B. Recommendations to International and Private Institutions**

- Clearly include retirement and social security details in the employment contract.
- Conduct regular conferences of employees regarding their pension rights.
- Link employee retention strategies to comprehensive long-term benefits packages that enhance security and perceived value.

## **5- Limitations and Future Research**

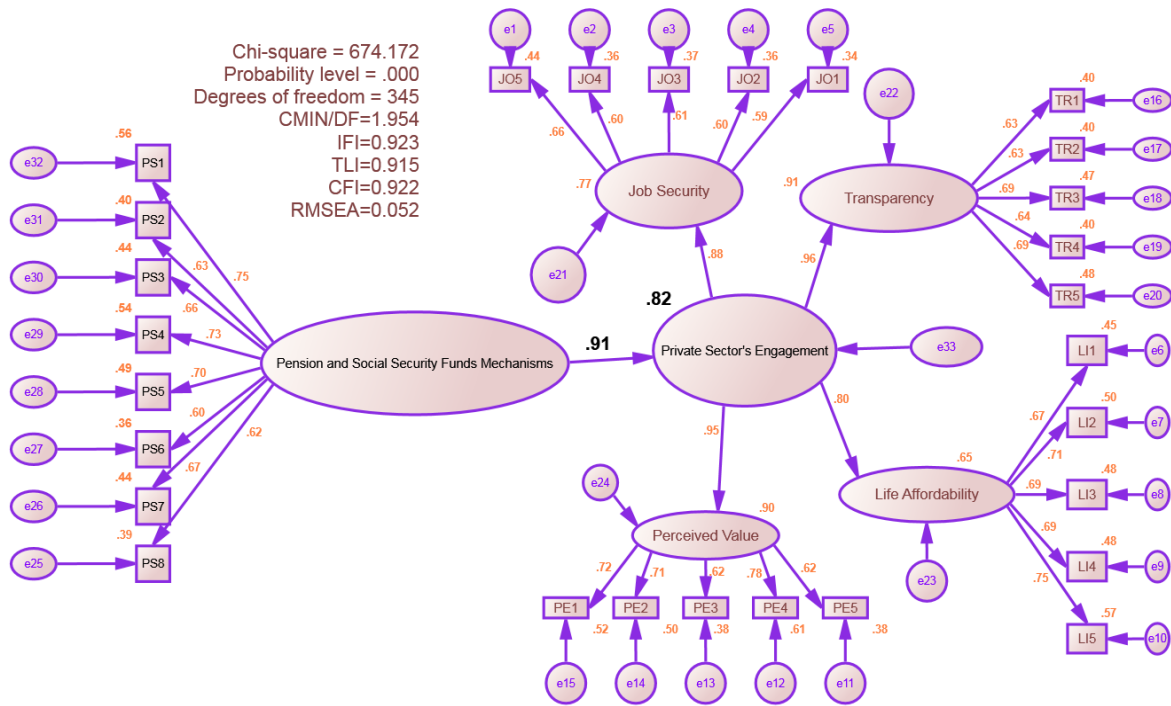
This study faces some limitations, most notably its reliance on self-reported survey data, which may be influenced by the personal perceptions of respondents, in addition to the differences in pension systems between institutions. The study suggests future comparative research between specific

types of institutions, testing the modifying role of regulatory variables such as legal framework or contract type, and using qualitative methods (in-depth interviews) to further interpret SEM results.

## References

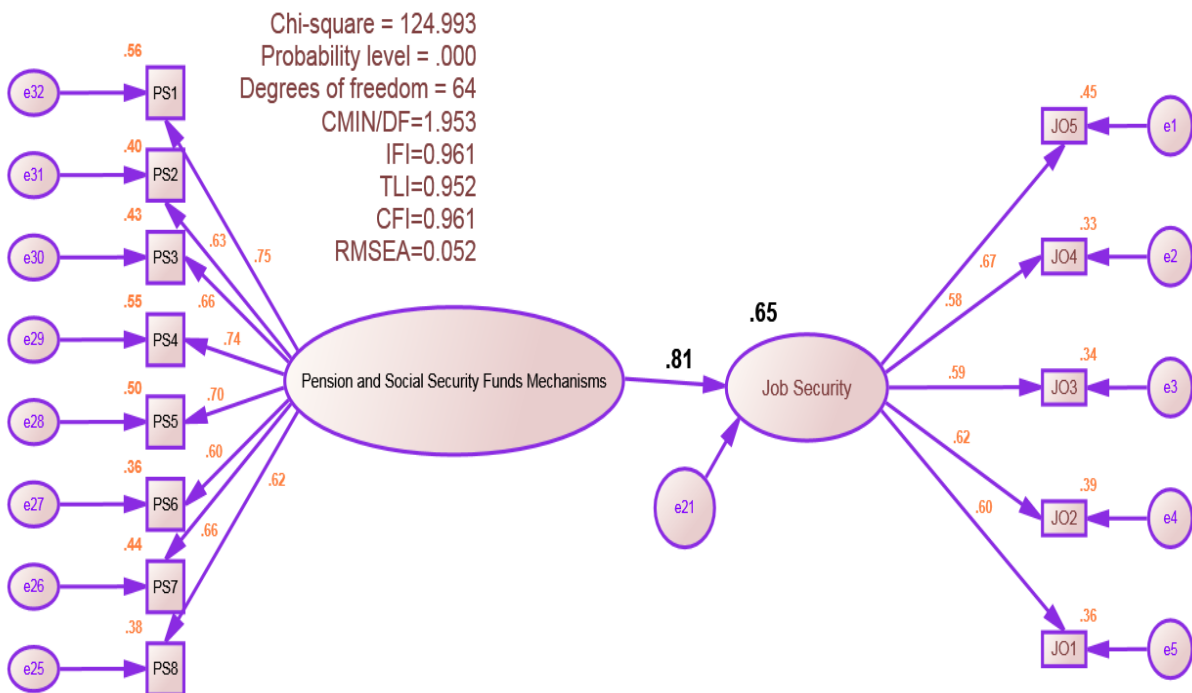
- 1- Akomea-Frimpong, I., Dankwah, A. O., & Asabere, P. K. (2022). Pension fund governance and financial performance: Evidence from Ghana. *Journal of Risk and Financial Management*, 15(4), 165. <https://doi.org/10.3390/jrfm15040165>
- 2- Barr, N., & Diamond, P. (2010). *Pension reform: A short guide*. Oxford University Press.
- 3- Becker, T. E., & Huselid, M. A. (1998). High performance work systems and firm performance: The mediating role of employee skills and motivation. *Academy of Management Journal*, 41(1), 8–29. <https://doi.org/10.2307/256871>
- 4- Blau, P. M. (1964). *Exchange and power in social life*. John Wiley & Sons.
- 5- Brunner, G., Hinz, R., & Rocha, R. (2008). *Risk-based supervision of pension funds: Emerging practices and challenges*. World Bank.
- 6- Byrne, B. M. (2016). *Structural equation modeling with AMOS: Basic concepts, applications, and programming* (3rd ed.). Routledge.
- 7- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates.
- 8- Cropanzano, R., & Mitchell, M. S. (2005). Social exchange theory: An interdisciplinary review. *Journal of Management*, 31(6), 874–900. <https://doi.org/10.1177/0149206305279602>
- 9- De Hauw, S., & De Vos, A. (2010). Millennials' career perspective and psychological contract expectations. *Journal of Business and Psychology*, 25(2), 293–302. <https://doi.org/10.1007/s10869-010-9162-0>
- 10- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis* (8th ed.). Cengage Learning.
- 11- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). *A primer on partial least squares structural equation modeling (PLS-SEM)* (3rd ed.). Sage.
- 12- International Labour Organization (ILO). (2021). *Social protection in Iraq: Status and challenges*. ILO Regional Office for Arab States.
- 13- International Organisation of Pension Supervisors (IOPS). (2017). *Supervisory guidelines on governance of pension funds*. OECD Publishing.
- 14- International Social Security Association (ISSA). (2019). *ISSA guidelines on good governance*. ISSA.
- 15- Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal*, 33(4), 692–724. <https://doi.org/10.2307/256287>
- 16- Kline, R. B. (2016). *Principles and practice of structural equation modeling* (4th ed.). Guilford Press.
- 17- Lockwood, N. R. (2007). Leveraging employee engagement for competitive advantage. *SHRM Research Quarterly*, 1–12.
- 18- Meyer, J. P., & Allen, N. J. (1997). *Commitment in the workplace: Theory, research, and application*. Sage Publications.
- 19- OECD. (2021). *Pensions at a glance 2021: OECD and G20 indicators*. OECD Publishing. <https://doi.org/10.1787/ca401ebd-en>
- 20- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review. *Journal of Applied Psychology*, 88(5), 879–903. <https://doi.org/10.1037/0021-9010.88.5.879>
- 21- Rhoades, L., & Eisenberger, R. (2002). Perceived organizational support: A review of the literature. *Journal of Applied Psychology*, 87(4), 698–714. <https://doi.org/10.1037/0021-9010.87.4.698>
- 22- Schaufeli, W. B., Salanova, M., González-Romá, V., & Bakker, A. B. (2002). The measurement of engagement and burnout: A confirmatory factor analytic approach. *Journal of Happiness Studies*, 3(1), 71–92. <https://doi.org/10.1023/A:1015630930326>
- 23- Sekaran, U., & Bougie, R. (2020). *Research methods for business: A skill-building approach* (8th ed.). Wiley.
- 24- Siddiqui, K. (2018). Pension systems and social security reforms in developing countries. *Journal of Economic Policy Reform*, 21(2), 85–99. <https://doi.org/10.1080/17487870.2017.1394587>
- 25- World Bank. (2023). *Social protection and jobs: Pensions and social security overview*. World Bank Group.

**Appendix**



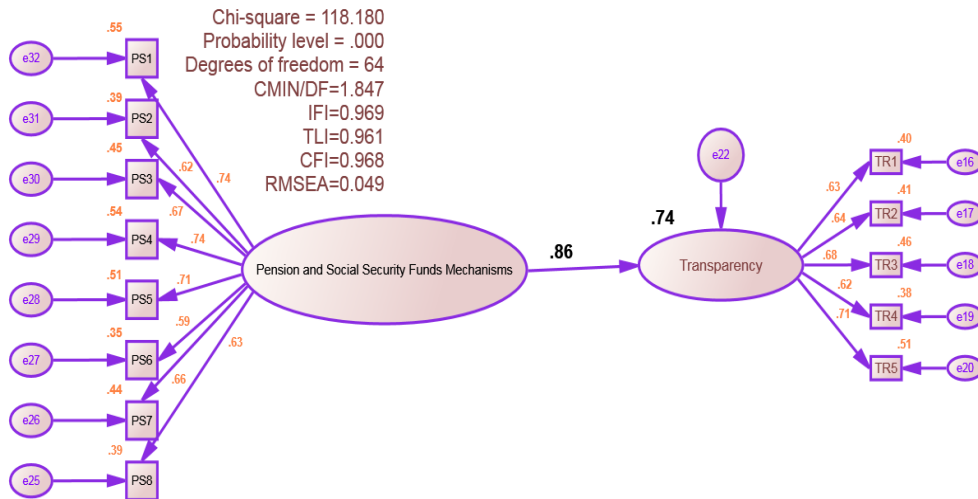
**Figure (1):** The structural model of the impact of (Pension and Social Security Funds Mechanism) on (Private Sector's Engagement)

**Source:** Prepared by the researcher based on statistical analysis using (AMOS-24)

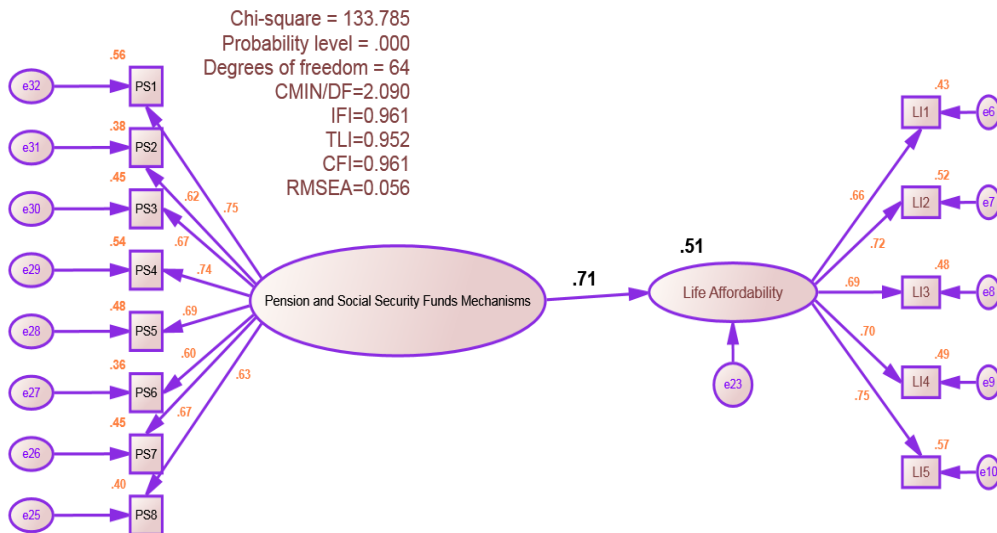


**Figure (2):** The structural model of the impact of (Pension and Social Security Funds Mechanism) on (Job Security)

**Source:** Prepared by the researcher based on statistical analysis using (AMOS-24)

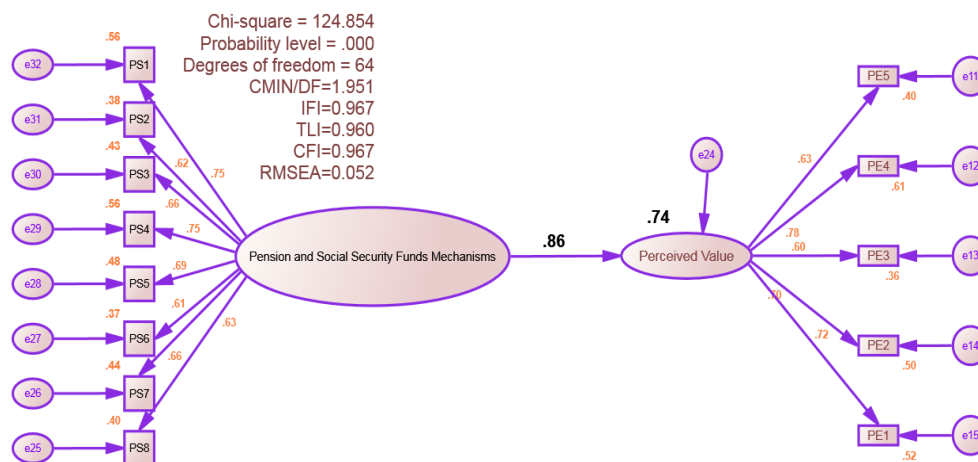


**Figure (3):** The structural model of the impact of (Pension and Social Security Funds Mechanism) on (Transparency)  
**Source:** Prepared by the researcher based on statistical analysis using (AMOS-24)



**Figure (4):** The structural model of the impact of (Pension and Social Security Funds Mechanism) on (Life Affordability)

**Source:** Prepared by the researcher based on statistical analysis using (AMOS-24)



**Figure (5):** The structural model of the impact of (Pension and Social Security Funds Mechanism) on (Perceived Value)

**Source:** Prepared by the researcher based on statistical analysis using (AMOS-24)

**Table (1):** Distribution of individuals sample according to the Gender

Categories	Frequency	Percent	Category Sort
Female	91	26.15%	2
Male	257	73.85%	1
<b>Total</b>	<b>348</b>	<b>100%</b>	

Source: Prepared by the researcher based on statistical analysis using (SPSS-27)

**Table (2):** Distribution of individuals sample according to the Age Categories

Categories	Frequency	Percent	Category Sort
Under 20	16	4.60%	5
21-25	96	27.59%	2
26-30	153	43.97%	1
31-35	53	15.23%	3
36-40	22	6.32%	4
41 or Above	8	2.30%	6
<b>Total</b>	<b>348</b>	<b>100%</b>	

Source: Prepared by the researcher based on statistical analysis using (SPSS-27)

**Table (3):** Distribution of individuals sample according to the Educational Level

Categories	Frequency	Percent	Category Sort
High school or equivalent	17	4.89%	5
Diploma	25	7.18%	4
Bachelor's Degree	128	36.78%	1
Master's Degree	119	34.20%	2
Doctorate	59	16.95%	3
<b>Total</b>	<b>348</b>	<b>100%</b>	

Source: Prepared by the researcher based on statistical analysis using (SPSS-27)

**Table (4):** Distribution of individuals sample according to the Years of Work Experience Categories

Categories	Frequency	Percent	Category Sort
Less than 1 year	7	2.01%	5
1-5 years	73	20.98%	3
6-10 years	90	25.86%	2
11-20 years	124	35.63%	1
More than 20 years	54	15.52%	4
<b>Total</b>	<b>348</b>	<b>100%</b>	

Source: Prepared by the researcher based on statistical analysis using (SPSS-27)

**Table (5):** Distribution of individuals sample according to Occupation Categories

Categories	Frequency	Percent	Category Sort
International Company Employee	110	31.61%	2
International Agency Employee	20	5.75%	4
Private University Employee	97	27.87%	3
International or Local NGO Employee	121	34.77%	1
<b>Total</b>	<b>348</b>	<b>100%</b>	

Source: Prepared by the researcher based on statistical analysis using (SPSS-27)