Identifying the Factors Affecting Production Growth in Wooden Furniture Industry in the Post-Corona Era in Iran

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This research aimed to provide a comprehensive model to identify the factors that affect growth in production within the wooden furniture industry in the post-corona era. A mixed research method was used, gathering both quantitative and qualitative data. The statistical population consisted of experts and academics, with the effective factors being explored through interviews. In the qualitative section, through thematic analysis and the use of MAXQDA software, 10 themes were identified after 10 interviews. To determine the final indicators, a researcher-made questionnaire was distributed to five experts, resulting in the presentation of the conceptual model. In the quantitative section, 120 individuals were selected (112 responded). The questionnaire, including the final indicators, was then distributed to them. In this section, the SEM method and Smart-Pls software were used for factor analysis. The results indicated that factors such as the political environment, supply chain, and improvement of the business climate had the greatest impact on production growth. A significant relationship was found between factors influencing technological developments, productivity, procedural modifications, monetary policies, financial policies, rules and regulations, political environment, administrative bureaucracy, improvement of the business climate, supply chain, and production growth in the wooden furniture industry in Iran during the post-corona era.

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INTRODUCTION

The outbreak of the Coronavirus has affected collective activities such as economic and industrial events in societies, so the epidemic dimensions of this disease cannot be compared with previous crises. Overall, the economic impact of COVID-19 on the global economic recession is serious and inevitable, even more important than the 2008-2009 financial crises (Aruga *et al.* 2020). The measures taken by governments to deal with COVID-19 have directly integrated and globalized the economy. COVID-19 has caused serious challenges in the supply chain of various industries (Liu *et al.* 2020). One of the most important effects of the virus is on the economic sector of countries. As countries are economically interconnected, communicate, and receive inputs from each other, all have experienced a decline in production. Transportation restrictions, especially between countries, have reduced global economic activity. Disease outbreaks can impact various

aspects of the economy, including capital markets (where cash flow is weak), labor markets (where many workers have lost their jobs due to industry shutdowns), foreign trade (where national and international businesses are facing losses), and the consumption and production sectors (Shang and Zhang 2021). At the firm level, COVID-19 has a negative impact on firms' performance due to decreased sales and, consequently, reduced revenue. The negative impact of COVID-19 on firm performance is greater when the scale of investment or sales revenue of the firm is smaller (Shen *et al.* 2020).

Sakhaei *et al.* (2020) demonstrated that the Coronavirus impacts Iran's economy primarily through a reduction in GDP. This shock to production results in a more enduring effect, initially decreasing GDP by 1.9%. According to research utilizing an input-output general equilibrium model, the overall negative impact on labor supply amounted to 34% (Karimi *et al.* 2020). Jahangard and Kakaie (2021) noted a 4.3% decrease in production and a 4% decline in value-added activities within the economy. Additionally, approximately 6.5% of the country's employees have been affected directly or indirectly by the Coronavirus.

Wooden furniture production has a long tradition in Iran and has always been an important segment of the country's economy. The growth and development of the modern furniture industry in Iran began in the 1970s, with large factories active in the years before 1980. In recent years, this industry has continued to grow and develop due to the expansion of private sector investment, bank loans, imports of new machinery and engineered raw materials, and an increase in income among the urban middle class. Several markets, such as large malls, have been created to cater to domestic customers and neighboring countries, especially in big cities such as Tehran, the capital of Iran (Gudarzi *et al.* 2020). With the exception of a few large industrial units, wooden furniture manufacturing enterprises in Iran are primarily small and medium-sized enterprises (SMEs). Unfortunately, there is a lack of precise and reliable data on the amount of wooden furniture produced, imported, and exported in Iran. However, approximate estimates from the Ministry of Industry, Mines and Trade of Iran in 2017 suggest that there are more than 65,000 active enterprises in this industry, with total revenue estimated at USD 1.5 billion. Industrial unions report that more than 8% of the country's workforce is employed in this industry. From 2013 to 2022, the value of imported wooden furniture has decreased while exports have increased. Several factors contribute to this decrease, including an increase in domestic production and changes in tariffs and commercial profits. In the case of exports, an increasing exchange rate has led to an increase in exports (Arian and Vlosky 2023).

Numerous studies have investigated the impacts of COVID-19 on the industry and trade sectors in various countries. However, in the furniture and diverse wood product industries, as an industrial branch, the number of these studies is limited. There are several reasons for this issue. In developed countries, these industries do not have a significant share compared to the overall economic and industrial activities. On the other hand, these countries attempted to control the destructive effects of the disease from the early stages of the pandemic by implementing successful contractionary policies. Nevertheless, the results have demonstrated the impact that the COVID-19 pandemic has had on the wooden furniture industry and the factors affecting production growth in this sector in the post-COVID-19 era. The forest products industries were one of the industries that were affected by the COVID-19 pandemic. A survey shows that wood value chains have been severely affected by the pandemic. However, the intensity was not the same among different sectors. In fact, the pulp and paper business reported a positive impact. This diverse answer is because the products of this sector are different and based on demand and supply, they are

related to different markets and value chains (Størdal *et al.* 2021). The results of the study conducted showed that the COVID-19 outbreak and the market of wood products was directly affected, and the demand for end products was indirectly affected (Muhammad and Taylor 2020). In research on the estimation of the economic damage caused by the COVID-19 disease on different economic sectors of Iran in the form of seven different scenarios, the researchers found out that the wood and paper industry has been damaged by 3.88% in the best scenario and 3.95% in the worst scenario. In total, Iran's GDP has decreased by 5.65% in the best scenario and 6.63% in the worst scenario (Mirnezami *et al.* 2024). The results of another study on the epidemic assessment of Iran's industrial sector, using the social accounting matrix, show that the wood and furniture industry during 2020 included about 1.1% of the country's GDP and during the months of January, February, and March 2020, about 0.2% decrease in GDP was caused by the disease (Parmeh 2020).

The COVID-19 pandemic has transformed the housing industry due to travel restrictions and the need to stay at home. Therefore, the demand for household goods, including furniture and wooden products, increased significantly. The outbreak of COVID-19 caused serious challenges to wood-based products at the local and global levels in various aspects such as access to raw materials and their prices, disruption of the supply chain, increased transportation costs, and longer delivery times (Kuzman *et al.* 2023). Chen and Yang (2021) found that the COVID-19 pandemic has reduced consumer preferences for wooden furniture, but the decline in preferences is less for wooden furniture produced by extra-large furniture manufacturers. In Malaysia, the wooden furniture industry has been severely affected in terms of financial management and supply chain disruption, because most of the companies producing various furniture products are SMEs (Ratnasingam *et al.* 2020). Therefore, during the outbreak of COVID-19 and after, they have needed serious support from the government in order to grow their production. The results of research by Kuznan *et al.* (2023) on government support for wood-based products industry companies during the Corona era in three countries, Croatia, Serbia, Bosnia, and Herzegovina (BiH), show interesting findings. The governments provided packages to ensure the livelihood of the employees, and also by giving loans with low interest and long-term return rates. They caused many companies to return to the production and business cycle after the initial shock of the spread of the disease.

The COVID-19 pandemic and resulting quarantines caused major disruptions in the market, leading to the bankruptcy of a large number of SMEs. Some estimates suggest that the rate of business failures among SMEs could double (Gourinchas *et al.* 2020). Therefore, small and medium enterprises must respond to the challenges created by this pandemic and modify their business models (Gregurec *et al.* 2021). Ratnasingam *et al.* (2020) reported that in Malaysia, a significant exporter of wooden furniture, over 85% of enterprises in this industry are small and medium scale. Jelacic *et al.* (2021) found differences between small and medium-scale wooden furniture enterprises in terms of the driving parameters of business and production management during the market disruption caused by the COVID-19 pandemic. Small companies prioritize production plans, product quality, and human resources, while medium-scale companies prioritize leadership, policy, organizational structure, process culture, management processes, and production plans.

A thorough examination of the research results mentioned reveals that numerous crucial factors influencing production and trade in the wood products industry have been disrupted or declined as a result of the disease's effects. Consequently, in the post-COVID-19 era, there is a growing necessity to rebuild these industries in order to promote increased production growth.

The present research aims to provide a model of production growth that considers all related factors inside and outside the company, at both micro and macro levels, and even takes into account the country's political situation in the wooden furniture industry during the post-COVID-19 period. The factors studied were obtained precisely through interviews. Certainly, this model can identify the challenges, obstacles, and factors influencing production growth in the wooden furniture industry in the post-COVID-19 era. Therefore, the ultimate objective is to provide an analytical model of the incidents and consequences of production growth in the wooden furniture industry. Providing this model is not only necessary to revitalize the wooden furniture industry, but also, as the first comprehensive model focused on industrial production growth in Iran, it can offer its innovation to other industrial and manufacturing sectors and be the operational initiator of removing obstacles to production growth in the post-COVID-19 era.

Therefore, the main research question is as follows:

How can we create a coherent model to identify the factors affecting production growth in the wooden furniture industry in Iran in the post-corona era?

EXPERIMENTAL

Methods

This study utilized a mixed research method, incorporating both quantitative and qualitative data in the implementation process. The research objectives were descriptive-survey in nature. Participants were selected based on two kinds of criteria: the qualitative step of the analysis took input from participants who were experts in the wooden furniture industry, such as senior managers, employees, and academics, who were interviewed in-depth using structured or semi-structured interviews to explore factors affecting production growth and its consequences in the post-COVID-19 era. For the quantitative analysis, participants were selected as employees with over a year of experience in the field, selected using purposive non-random sampling. In structural equation modeling (SEM) methodology, the sample size guideline is $5q < n < 15q$, where q is the number of observed variables or items in the questionnaire, and n is the sample size. Wolf *et al.* (2013) recommended a ratio of 10 responses per parameter for reliability when using SEM. A total of 112 completed questionnaires were received for data analysis, meeting the criteria for reliability and validity through Cronbach's alpha coefficient, composite reliability, and convergent validity. The scale's face and content validities were assessed, and confirmatory factor analysis (CFA) was used to evaluate internal consistency and identify latent constructs.

Data Analysis

The qualitative section

Data analysis was conducted using the thematic analysis method and with the assistance of MAXQDA software. Thematic analysis involves a set of techniques used to analyze textual data and identify themes (Jacoby and Siminoff 2008). Its key feature is the systematic process of coding, examining meaning, and providing a description of social reality through the creation of themes (Berg and Latin 2008; Zhang and Wildemuth 2009). Thematic analysis is utilized when there are no comprehensive conceptual models on the subject. Previous research has been conducted to establish a model for analyzing the impacts and implications of production growth in the wooden furniture industry in the post-

COVID-19 era. The thematic analysis process begins with the analyst identifying patterns of meaning and potential themes of interest. This analysis involves continuously moving back and forth between the data set, encoded extracts, and generated data analysis. Writing an analysis begins with the initial step. There is typically no singular way to start thematic analysis (Braun and Clarke 2006). The main steps of thematic analysis are outlined below.

Step 1: Familiarization

The necessary materials for data analysis include all types of data that can be converted into a text format, such as data from literature reviews in journals and books, internet searches, semi-structured interviews with experts, and more. By repeatedly reading through collected transcripts, researchers develop a general understanding of the data and the theme being investigated. This understanding helps researchers concentrate on the most significant constructs identified in the current research. During this stage, researchers carefully study and take note of the results multiple times in order to explain the trends in participants' views (Vaismoradi *et al.* 2016).

Step 2: Creating the initial codes

Coding is a crucial process in qualitative data organization, aimed at reducing and extracting meaning from data (Green *et al.* 2007). It involves highlighting text portions and assigning brief labels or "codes" to describe content, enabling interpretation and explanation at a higher logical level (Graneheim and Lundman 2004).

Step 3: Generating the themes

The third step involves categorizing the various codes into potential themes and sorting all the coded data extracts into specified themes. Themes are generally broader than codes. Most of the time, multiple codes are combined into a single theme. In this section, the goal is to identify codes related to a single theme.

Step 4: Reviewing the themes

During this stage, the researcher needs to review the themes by determining if data extracts fit into specific themes. This review process creates a theme map. After this stage, the researcher should carefully ensure that these themes accurately reflect the meanings of the data set (Prokopis 2023). This step includes two stages of reviewing and refining the themes. The first stage involves reviewing at the level of the coded extracts. In the second stage, the validity of the themes regarding the data set is considered. If the thematic map works well, then you can move on to the next step. However, if the map is not consistent with the data set, the researcher must go back and continue coding until a satisfactory theme map is created.

Step 5: Defining and naming the themes

The fifth step begins when there is a satisfactory map of the themes. In this step, the researcher defines and reviews the themes provided for analysis, and then analyzes the data within them. Drawing a map and diagram to explain the themes helps to understand the nature of the phenomenon under study and to find connections between the themes, which are necessary for their analytical interpretation (Ollerenshaw and Creswell 2002; Barnett-Page and Thomas 2009). By the end of this stage, the researcher should have clearly defined the themes and sub-themes of the research and be able to describe the contents of each theme (Prokopis 2023).

The quantitative section

In this section, a SEM technique was used to investigate the relationship between dependent and independent variables. SEM is a multivariate analytical approach that examines the causal sequence of variables in a network of relationships (Fynes and Voss 2001) and can be used to analyze the relationships between a latent variable and an observed variable (Lei and Wu 2007). In this study, the partial least squares (PLS) method, performed by Smart PLS, was selected. PLS includes more accurate assumptions for the distribution of variables and error terms, and it is able to analyze small data without the need to normalize the sample distribution (Goodhue *et al.* 2006). The PLS path models are formally defined by two sets of linear equations called the inner and outer models, respectively. The inner (or structural) model specifies the relationships between unobserved or latent variables (LVs), while the outer model (or measurement) specifies the relationships between latent and observed or manifest variables (MVs) (Boccia and Sarnacchiaro 2014).

RESULTS AND DISCUSSION

The Qualitative Section

In this section, the final themes were extracted using the thematic analysis method with the help of MAXQDA software, based on interviews with 10 experts and academics in the wooden furniture industry. Table 1 displays the demographic characteristics of the interviewees. The process of extracting 10 themes from the interviews is as follows: first, the researchers reviewed all the interviews to familiarize themselves with ideas and patterns. Good ideas about coding and patterns were formed during this stage. Next, the researchers began the coding process. In the following step, initial codes were created from the data (267 initial codes) with the assistance of software. The codes were defined with clear boundaries to avoid changes or repetitions. The third step involved categorizing and sorting all the coded data into potential themes. The next step consisted of two parts: reviewing and refining the themes. During this stage, it was important to ensure that the data fit well with the themes and accurately reflected the meanings of the data set. In the final stage, a final list of themes was created to clearly define the research themes, which were organized into 10 themes as follows:

- Technology developments
- Productivity of factors of production
- Modification of procedures and production executive processes
- Monetary policies
- Financial policies
- Rules and Regulations
- Political environment
- Administrative bureaucracy
- Improvement of the business climate
- Supply chain

Table 1. Demographic Characteristics of Interviewees in the Qualitative Section

Demographic Features	Range/Classifications	Respondents	Percentage
Gender	Male	8	80
	Female	2	20
Education	Master's degree or higher	4	40
	Ph. D	6	60
Age (years)	< 40	8	80
	40-50	1	10
	>50	1	10
Work Experience (years)	< 15	6	60
	15-25	2	20
	>25	2	20

Then, after considering the opinions of experts to finalize the 10 factors, a questionnaire was designed and given to five experts (A to B) based on a five-point Likert-type scale (1 = Strongly Ineffective to 5 = Strongly Effective) to determine the final indicator by participants scoring these codes (Table 2). To assess the reliability or internal consistency of the data collected through the questionnaires, the Cronbach's alpha test was used. This was calculated after distributing 15 questionnaires among the respondents and collecting them. Hair *et al.* (2014) stated that a value greater than 0.70 indicates good reliability for the questionnaire. To ensure validity, the interviewee survey method was employed. In this method, the researcher provided a portion of the findings to the study group for review, asking questions such as: Did the researcher correctly understand what was said? Does the analysis seem logical, or was there a misunderstanding of the data? In this study, some interviewees were asked to review the final report of the first stage and provide their opinions. According to these individuals, the research findings largely reflected the existing reality, indicating the acceptable validity of the study's findings. Table 2 presents the scores of experts for each index in the questionnaire.

Table 2. Experts' Scores for Each Indicator in the Questionnaire

Indicator / Experts	A	B	C	D	E
Technology developments	4	4	5	5	5
Productivity of factors of production	5	5	4	5	5
Modification of procedures and production of executive processes	5	4	5	4	4
Monetary policies	4	4	4	5	4
Financial policies	4	4	4	5	5
Rules and regulations	5	5	4	4	4
Political environment	3	5	5	4	5
Administrative bureaucracy	5	5	4	5	5
Improvement of the business climate	3	5	3	4	4
Supply chain	3	5	4	5	5

In the next step, the valuation provided by the experts was analyzed and evaluated using Shannon's entropy statistics in Excel version 2010 software. Shannon's entropy is an effective method that can be utilized to calculate attribute weights in multi-attribute decision-making (MADM) problems (Lotfi and Fallahnejad 2010). The results are presented in Table 3.

Table 3. Shannon's Entropies and Weight of the Indicators

Indicators	Total Score	Entropy	Weights
Technology developments	23	0.9960	0.0611
Productivity of factors of production	24	0.9968	0.0489
Modification of procedures and production executive processes	22	0.9955	0.0689
Monetary policies	21	0.9965	0.0535
Financial policies	22	0.9955	0.0689
Rules and regulations	22	0.9955	0.0689
Political environment	22	0.9872	0.1957
Administrative bureaucracy	24	0.9968	0.0489
Improvement of the business climate	19	0.9876	0.1896
Supply chain	22	0.9872	0.1957

Based on this, the final form of the proposed model is as shown in Fig. 1.

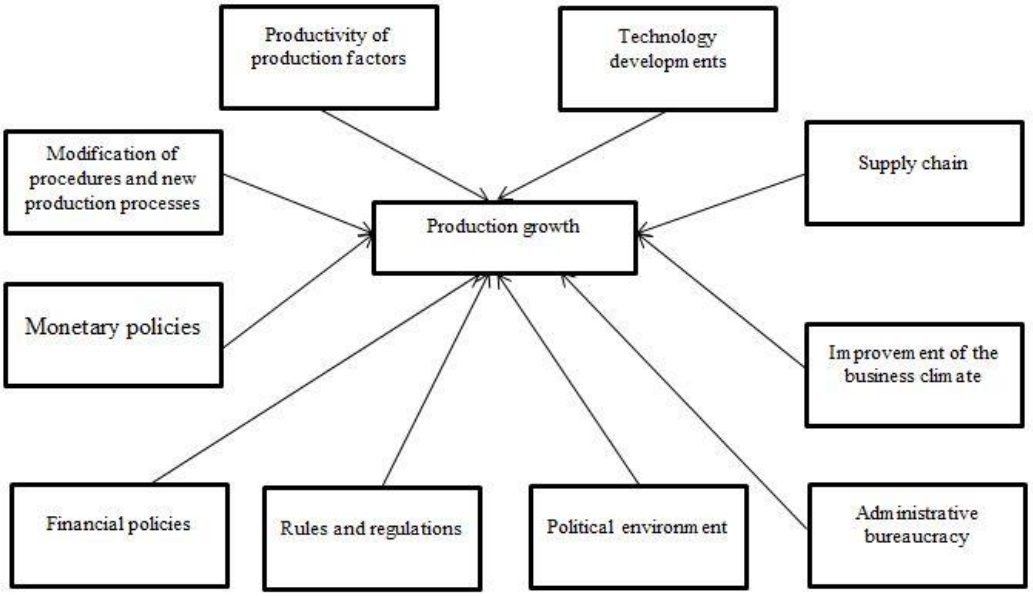

Fig. 1. Proposed Conceptual Model

Table 4. Demographic Characteristics of Respondents

Demographic Features	Range/Classifications	Respondents	Percentage
Gender	Male	85	76
	Female	27	24
Education	Bachelor's degree or lower	18	16
	Master's degree	55	49
	Ph. D	39	35
Age (years)	< 30	15	13.4
	31-40	47	42
	41-50	28	25
	>51	22	19.6

The Quantitative Section

According to Cochran's formula, a sample size of 120 individuals was determined, and questionnaires were distributed to them. A total of 112 complete questionnaires were received and deemed acceptable for data analysis. Table 4 displays the demographic characteristics of the respondents.

Reliability and Validity

The reliability or internal consistency coefficient of a measure (the questionnaire items) is the extent to which the results can be reproduced when the research is repeated under the same conditions. Validity refers to the relevance of a specific item in relation to its consistency with the theoretical assumptions derived regarding the variables being measured. In this study, reliability was calculated through Cronbach's alpha coefficient (α) and composite reliability (CR). Cronbach's alpha coefficient is obtained based on the average covariance (or correlation) of the questions in a questionnaire. When there are several subscales in the questionnaire, alpha is calculated separately for each subscale. Composite Reliability is a measure of the internal consistency of scale measures, similar to Cronbach's alpha in terms of efficiency. In the CR index, the reliability of the constructs is calculated not in absolute terms, but according to the correlation of their constructs with each other. The CR index can be considered equal to the total amount of variance of the actual score relative to the variance of the total scale score. Hair *et al.* (2014) stated that α greater than 0.7 indicates good reliability for all constructs. The results show that CR values for all constructs are greater than 0.70, reflecting good internal consistency. Convergent validity refers to the degree to which a measure correlates with other measures that are theoretically predicted to be related to it (Subramanian et al. 2014). Convergent validity is examined based on the average variance extracted (AVE), which indicates the average variance shared between each construct and its indicators. In simpler terms, AVE indicates the degree of correlation of a construct with its indicators. Additionally, any item with a factor loading of less than 0.35 was not considered for further analysis because it failed to measure a specific construct (Hair *et al.* 2009). Wah-Yap *et al.* (2012) showed that there is good convergent validity in the items of the questionnaire if the following three conditions exist: CR > AVE; AVE > 0.5; CR > 0.7, and the values of the factor loadings of all constructs are more than 0.5.

Table 5. Reliability, Validity, and Factor Loadings of the Constructs

Constructs	α	CR	AVE	Factor loadings
Technology developments (TD)	0.761	0.820	0.616	0.61
Productivity of factors of production (PF)	0.777	0.862	0.753	0.57
Modification of procedures and production executive processes(MPP)	0.835	0.877	0.594	0.72
Monetary policies (MP)	0.905	0.931	0.801	0.60
Financial policies (FP)	0.812	0.839	0.692	0.66
Rules and regulations (RR)	0.729	0.842	0.748	0.64
Political environment (PE)	0.888	0.915	0.639	0.58
Administrative bureaucracy (AB)	0.808	0.828	0.599	0.67
Improvement of the business climate(IBC)	0.754	0.961	0.716	0.59
Supply chain (SC)	0.945	0.819	0.812	0.78
Production growth (PG)	1.000	1.000	1.000	0.84

Structural equation modeling (SEM) is a multivariate technique that combines elements of multiple regression and factor analysis to evaluate a series of dependent relationships simultaneously (Siddiqui and Sharma 2010). SEM is divided into two phases: confirmatory factor analysis (CFA) and path analysis. It is a powerful statistical technique that combines a measurement model (CFA) and a structural model (regression or path analysis) with a simultaneous statistical test. SEM analyzes the relationships between latent and observed (measured) variables as a statistical model (Lei and Wu 2007). In the measurement section, the relationship between indicators or questionnaire items and structures is examined, while in the structural section, the relationship between the studied factors is important for testing hypotheses. Confirmatory factor analysis (CFA) can be applied to evaluate the quality of the measurement model (Teo 2011). CFA confirms how well the measured variables represent the number of constructs (Hair *et al.* 2009). Gerpott *et al.* (2001) used a measurement model that describes latent structures based on indicator variables to develop causal hypotheses.

Hypotheses Testing

Based on the effective determinants of production growth in the wooden furniture industry in the post- COVID-19 era, the hypotheses were formulated as follows:

H1: Technology developments have a positive and significant relationship with production growth.

H2: Productivity of factors of production has a positive and significant relationship with production growth.

H3: Modification of procedures and production executive processes has a positive and significant relationship with production growth.

H4: Monetary policies have a positive and significant relationship with production growth.

H5: Financial policies have a positive and significant relationship with production growth.

H6: Rules and regulations have a positive and significant relationship with production growth.

H7: Political environment has a positive and significant relationship with production growth.

H8: Administrative bureaucracy has a positive and significant relationship with production growth.

H9: Improvement of the business climate has a positive and significant relationship with production growth.

H10: Supply chain has a positive and significant relationship with production growth.

The research hypotheses were investigated and displayed in Table 6. For this purpose, the path coefficient was calculated (Fig. 2). The path coefficient indicates the strength of the correlation between the explanatory and explained variables. To determine whether a hypothesis can be accepted or rejected, the significance values between constructs, t-statistics (>1.96 or < -1.96), and p-values ($\alpha<0.005$) with a 95% confidence interval were determined (Fig. 3). There are various methods for implementing SEM. One of the latest approaches in SEM is the PLS method (Rismawati *et al.* 2024).

Table 6. Results Obtained from Hypotheses Testing

Hypotheses	Hypothesized Path	Pc	T-value	P-value	Results
H1:	TD → PG	0.567[a]	5.675	0.004	Accepted
H2:	PF → PG	0.657	6.343	0.009	Accepted
H3:	MPP → PG	0.777	5.897	0.001	Accepted
H4:	MP→ PG	0.609	6.559	0.000	Accepted
H5:	FP → PG	0.743	6.732	0.000	Accepted
H6:	RR → PG	0.503	4.983	0.023	Accepted
H7:	PE → PG	0.549	5.945	0.014	Accepted
H8:	AB → PG	0.654	6.043	0.007	Accepted
H9:	IBC → PG	0.459	5.994	0.021	Accepted
H10:	SC → PG	0.651	5.761	0.000	Accepted
Notes: Pc = Path Coefficient; a = Indicates the significant level at -1.96 < t < 1.96					

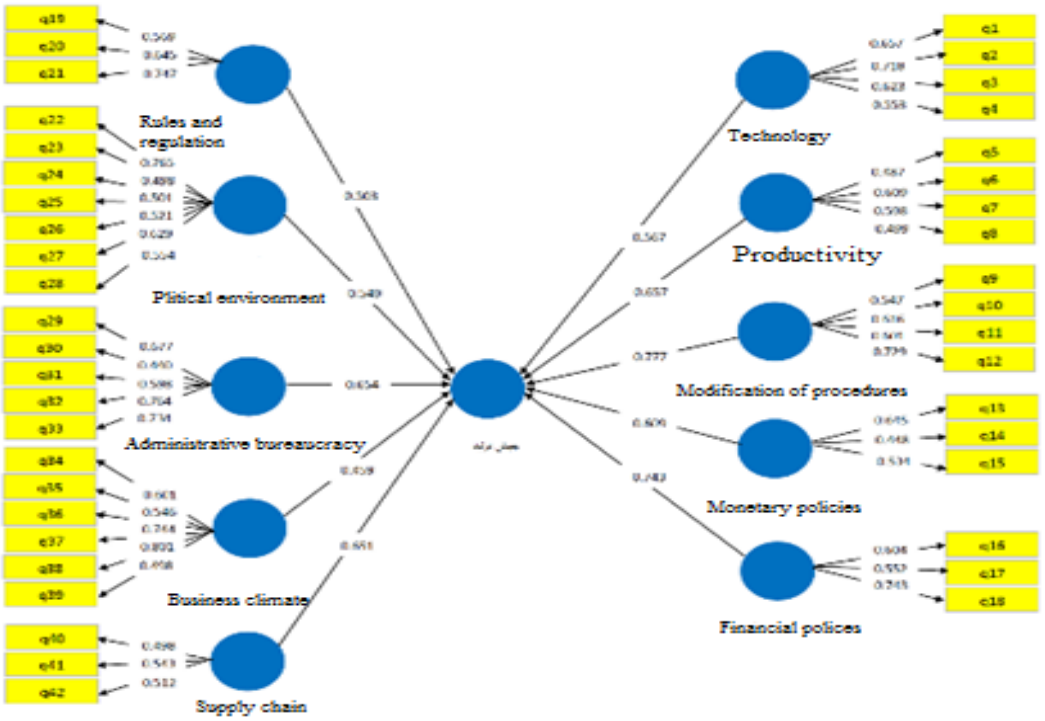

Fig. 2. Measurement model in standard estimation mode (PS-A)

H1 is supported by a set of data (PC = 0.567, p-value < 0.05, t-statistics = 5.675), indicating that technological developments are positively related to production growth. H2 shows that the productivity of factors of production is a significant determinant of production growth (PC = 0.657, p-value < 0.05, t-statistics = 6.343). This means that the productivity of factors of production is strongly associated with production growth. H3 is confirmed by a set of data (PC = 0.777, p-value < 0.05, t-statistics = 5.895) showing a significant relationship between the modification of procedures and production executive processes, and production growth. H4 (PC = 0.609, p-value < 0.05, t-statistics = 6.559) confirms the hypothesis of a significant relationship between monetary policies and production growth. Financial policies (H5) were found to be determinants of production growth (PC = 0.743, p-value < 0.05, t-statistics = 6.732), confirming the hypothesis that

financial policies and production growth are significantly related. H6 is supported by a set of data (PC = 0.503, p-value < 0.05, t-statistics = 4.893) indicating that the modification of procedures and production executive processes are positively related to production growth. H7 shows that the political environment is a significant determinant of production growth (PC = 0.549, p-value < 0.05, t-statistics = 5.945). H8 (PC = 0.654, p-value < 0.05, t-statistics = 6.043) confirms the hypothesis of a significant relationship between administrative bureaucracy and production growth. H9 is supported by a set of data (PC = 0.459, p-value < 0.05, t-statistics = 5.994), indicating that improvement of the business climate is strongly associated with production growth. Supply chain (H10) was found to be a determinant of production growth (PC = 0.651, p-value < 0.05, t-statistics = 5.761), confirming the hypothesis that supply chain and production growth are significantly related.

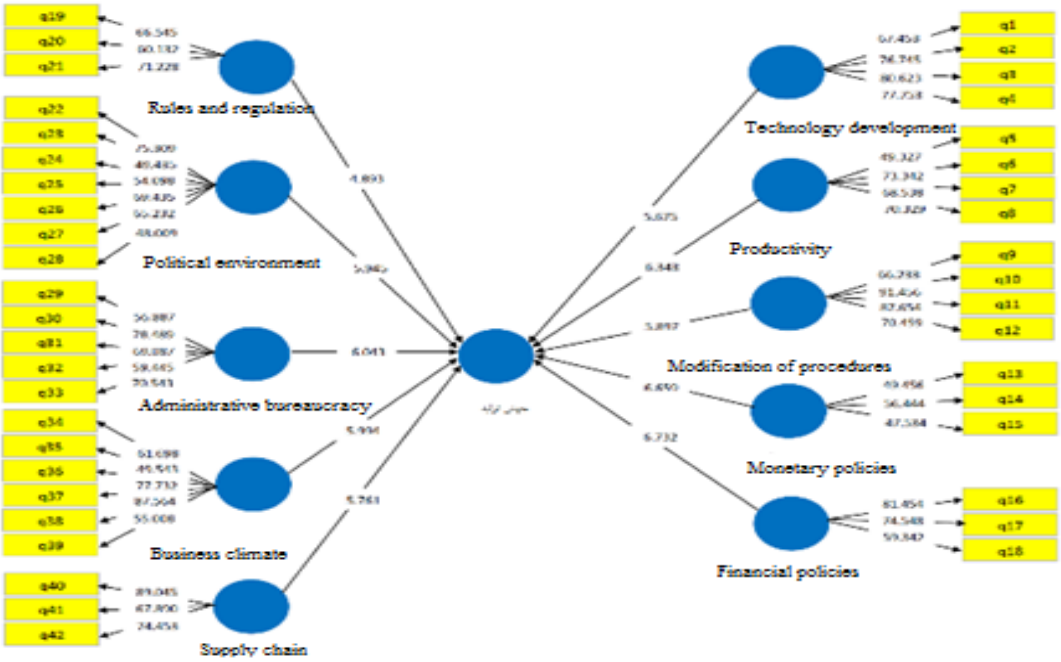

Fig. 3. Measurement model in significant coefficients mode

DISCUSSION

Finding the obstacles and problems in the wooden furniture industry can serve as a valuable guide for planners and investors, as this sector continually faces serious challenges to its survival. These challenges have diminished the industry's competitiveness and its share of both domestic and international markets. In light of the impact of the COVID-19 pandemic on the wooden furniture industry, it appears that there has been an increase in demand for furniture during this period. Several factors contribute to this trend, including travel restrictions due to border closures, a shift in company employees' work status to remote and home-based work, leading to a surge in home renovation and furniture purchases. However, some small furniture manufacturing companies encountered challenges, such as laying off a limited number of employees, due to disruptions in production and product delivery during the initial peak of the pandemic (Kuzman *et al.*

2023). Stanturf and Mansuy (2021) noted that many countries and large companies swiftly implemented significant social changes in response to the widespread disease. Therefore, post- COVID-19, it is crucial to enact changes in various areas such as human resources, education, innovation, digitalization, and the production of environmentally friendly products. Companies need to take steps to reduce waste, extend product lifetimes, and embrace innovative processes. In Iran, there is a strong desire in the post-COVID era to revitalize wooden furniture companies, increase production volumes, and expand market share to access global markets. As such, this research presents a comprehensive model for analyzing and evaluating production growth in the wooden furniture industry. The most significant practical actions derived from the proposed model are outlined below.

The development of technologies in various aspects of production to sales, such as online stores, 3D printing, and automated manufacturing processes, leads to increased production and access to new target markets in the wooden furniture industry. Digitalization has become a key factor in determining the competitiveness and innovation of companies, representing the process of implementing modern technologies across all aspects of operations. These innovations not only change the way furniture is designed and produced but also impact the business landscape, including aspects such as insurance, liability, and financial considerations for manufacturers. Such topics are emphasized by many researchers in Iran (Azizi *et al.* 2016; Khasipour *et al.* 2023). In the post-Corona era, wooden furniture manufacturers must increase total factor productivity by employing techniques such as lean manufacturing to boost production amounts and access regional export markets. This issue has also been noted by other researchers. Xu *et al.* (2019) found that Chinese furniture export companies, in the face of a competitive market, are forced to improve their productivity, thereby enhancing the TFP of furniture manufacturing companies. However, the TFP of Chinese furniture export companies is lower than that of non-exporting companies. This phenomenon is referred to as the "export-productivity paradox." As a result of applying lean manufacturing practices, a 65% improvement in waiting times and a 29% improvement in annual labor times were achieved (Guzel and Shahbazpour Asiabi 2022). During the COVID-19 pandemic, a significant portion of small- and medium-scale wooden furniture enterprises faced difficulties in repaying loan services, salaries, and even purchasing raw materials (Ratnasingam *et al.* 2020; Jelacic *et al.* 2021; Kuznan *et al.* 2023). They also experienced disruptions in their supply chain. Therefore, it is necessary for these companies in Iran to revise many of their financial policies (for example: expansionary and contractionary financial policies) and even seek reliable suppliers and vendors in their product supply chain. The wood and paper industries, especially the wooden furniture industry, are not considered strategic industries that drive economic development in Iran, while this industry has a high employment rate in the SMEs and the produced products have significant added value. Therefore, there is a need to review existing rules and regulations and decrease administrative bureaucracy to encourage companies to increase production and export their products. In the post- COVID era, the government should improve the business climate and reduce investment risk by adopting appropriate economic and political policies at the macro level, such as reducing international sanctions and allowing Iranian companies to conduct financial transactions with international financial systems. In such a situation, the presence of foreign investors will be possible, which will lead to growth in production and access to export markets. The post-Corona era is an opportunity for the wooden furniture industry in Iran to shift toward greater sustainability by solving structural problems and external obstacles. The results of this research play a significant role in achieving these goals.

CONCLUSIONS

1. The focus of the current research was on developing a comprehensive model of production growth that encompasses all relevant factors, both internal and external to the company, at micro and macro levels. It also considers the political landscape affecting the wooden furniture industry in the post-COVID-19 era. The factors analyzed were gathered through targeted interviews.

2. In the qualitative analysis, thematic analysis was employed alongside MAXQDA software, leading to the identification of 10 key themes. This was accomplished after conducting interviews with 10 experts and academics in the wooden furniture industry, from which we ultimately extracted the final themes.

3. In the qualitative analysis, factors such as the political environment, supply chain dynamics, and improvements in the business climate were identified as the most significant contributors to production growth, as highlighted by Shannon's entropy method.

4. In the quantitative section, the results indicated that factors such as the political environment, supply chain, and improvement of the business climate had the greatest impact on production growth. A significant relationship was found between factors influencing technological developments, productivity, procedural modifications, monetary policies, financial policies, rules and regulations, political environment, administrative bureaucracy, improvement of the business climate, supply chain, and production growth in the wooden furniture industry in Iran during the post-corona era.

5. During the COVID-19 pandemic, it appears that the demand for furniture has significantly risen. This surge has driven many homeowners to consider renovations and purchase new furniture. Additionally, the wooden furniture sector offers substantial employment opportunities within small and medium-sized enterprises (SMEs), with the products showcasing notable added value. As we move into the post- COVID-19 period, it is crucial for the government to concentrate on improvement of the business climate and reducing investment risks by adopting appropriate macroeconomic and political strategies.

6. At the company level, manufacturers must prioritize various factors to increase their production. These include improving the productivity of production factors, developing new technologies, reforming financial policies, and reducing costs. Additionally, they need to optimize the supply chain and even seek reliable suppliers and vendors.

7. The outbreak of the Coronavirus has significantly impacted collective activities, including economic and industrial events in societies, making it incomparable to previous crises. In Iran, companies producing various wooden furniture products have experienced a decrease in production levels, leading to unemployment among the workforce and reduced financial resources. A notable consequence of this pandemic has been the necessity to reassess numerous laws and policies at both micro and macro levels. Companies have been compelled to implement reforms across various aspects, including production, marketing, and sales. This research can help identify challenges, obstacles, and factors influencing production growth in the wooden furniture industry during the post-COVID-19 era, leading to potential innovative solutions for other industrial and manufacturing sectors.

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