

Investigating the Impact of Minimum Wages on Jordan's Industrial Exports

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Abstract: The purposes of the paper was to discuss the effects of minimum wages on industrial exports of Jordan and its main focus is on the empirical view of minimum wages and their significance in industrial exports in Jordan. A mixed-method approach has been selected where primary and secondary analysis of the data has been conducted to assess the impact of minimum wages on Jordan's industrial exports. The key findings of the paper revealed that there is a significant and positive relationship between industrial exports and minimum wages. In addition, the Pearson correlational value is .411, which means there is a significant and moderate correlation between these two variables. Moreover, the standardized beta coefficient of minimum wages is .411, which is moderate. 1 % change in minimum wages brings about 41.1% changes in industrial exports. Therefore, it is concluded that there is a significant and positive influence of minimum wages on industrial exports. The researchers are intending to investigate the minimum wages in individual sectors, more precisely the influence of minimum wages on Jordanian pharmaceutical industry.

Keywords: Minimum Wage, Exports, Industrial Exports, Economy, Labor, Jordan.

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1 Introduction

In the current era, the countries are focusing intensively on economic affairs. The world has moved to the next step in economic competition. In this regard, states assess, design, and implement economic policies to upgrade their economic output. One of the essential factors considered is exports. Exports refer to selling goods or services produced to another country [1]. Exports tend to be significant contributors to the growth of the economy [2]. Similarly, exports are influenced by various factors which include the logistics performance index, official exchange rates, insurance and financial services, and employee wages [3], [4], [5]. This article also evaluates the impact of minimum wages on the industrial exports of Jordan; considering employee wages.

The Tripartite Committee determined minimum wages in Jordan. In addition, the wage is determined in the Jordan Currency [6]. The committee holds the member for two years. This committee exists to enforce the labor laws. Similarly, those, who do not follow the minimum wages, are marked penalty by the committee. In brief, the implementation of the minimum wage is found in Jordan as effective. Many

studies in different countries have been conducted to analyses and assess the influence of minimum wages on exports, which tends to be a critical factor in developing countries.

2 Literature Review

Chen examined the effects of minimum wages in China and revealed that firms actively and intensively engaged in the exports tend to face more minimum wage effects [7]. However, the downstream industries were less affected by the minimum wage laws. Also, the exports were affected by trade as it influenced the pro-competitive impact thereby benefitting the skilled labor force and the exporters. Hence, the findings of this article concluded that wage inequality issue was more severe in upstream industries instead of downstream sectors due to larger export share of sales.

Furthermore, Akgunduz et al. analysed the impact of minimum wages on the Exporters in Turkey and stated that the impact of minimum wages was considered pivotal in developing countries [8].

Minimum wage was found to be a major contributor to the motivation of the larger population to work productively in such countries. In addition, the organizations use it as a competitive advantage to increase employee performance. The findings of this study were in congruence with Bai et al. who studied and investigated the impact of minimum wages on exports in China and concluded that exports were highly affected by raising the minimum wages in such middle-income settings [9].

Moreover, the country's firms are considered essentials of exports, and the higher productive and competitive firms tend to be better at exports. Similarly, it is highly needed for the countries to enhance their local production first. A well-known model, given by Melitz, concluded that firms have to be most complete and productive at first, and then they can enter into international market or exports [10]. Hence, such productivity and competitiveness can also be achieved by minimum wages.

Exports, as signified by Aghion et al. (2018) are influenced by many factors such as unemployment, labor substitution, and product prices. Bai et al. (2021) also examined the effects of minimum wage rises on various elements, including exports and found that minimum wage creates higher unemployment rate. This is due to an increase in the cost of labor for the firms, which as a result, shortened their hires. Consequently, an aggregate action of firms leads to higher unemployment. Similarly, it was found by Aghion et al. (2018) that minimum wages raised products prices. The increasing cost of labor forces firms to raise their prices to meet the firm's economic objective. However, it leads to higher prices of those firms' production in the international market. Moreover, the minimum wage influences industrial exports negatively, as it increases the cost of labor, leading to an increase in products prices. As a result, exports tend to decline due to higher prices. In brief, the exports of labor-intensive goods are declined due increase in the minimum wage.

Minimum wage law affects unemployment in developed countries. According to Alaniz, Gindling, and Terrell, workers whose minimum wage is nearer to 20% are usually influenced more [11]. Mostly, it is considered as a problem for developing countries than developed countries. Therefore, it is the most studied topic in the underdeveloped and developing world. Similarly, Akgunduz et al. also supported that

influence of minimum wages is considered essential in developing countries [12]. Developing countries hold growing firms and other sectors. Hence, those firms, which are on the growing face, tend to be very sensitive towards the cost of productions. They usually have not achieved economies of scale. Therefore, there are affected most. Moreover, the developing countries are structured with a major population that belongs to the middle class; thus, sometimes minimum wages increase the productivity of employees, which ultimately leads to higher firm performance. Consequently, the aggregate supply and exports of the country increase to a larger extent. In brief, the minimum wage motivates workers to work more productively.

Industrial exports are considered as vital assets for the country's economy. Governments usually provide subsidies to develop their local industry and make it competitive so that they can compete on an international level. This is primarily done to boost exports. In contrast, the governments impose minimum wage laws to reduce the poverty level and upgrade the living standards of workers. Melitz emphasized that the competitiveness of the local firms is to be developed at first [10]. This will make these firms eligible for international market expansion and competition. As a result, it will generate a good economic return for the home country in the form of exports incomes. However, it becomes a complex situation, as higher minimum wage impacts negatively on the firms' performance and the objective of economic boost remains unfulfilled [9]. Nevertheless, this is not always the case; as most of the time, minimum wages are likely to enhance productivity and competitiveness among firms.

Moreover, the empirical view of the effects of minimum wages has been divided into two categories. The first category considers that real wages are flexible and there are distorted inter-industry wages. The second category concluded that there are distorted industrial wages in all the industries. Artuc et al. evaluated the first category of researchers and concluded that capital intensity is increased in response to the increase in the minimum wages [13]. This leads to a decline in industrial productivity. Similarly, the study indicated that an increase in wages would cause a boost in exports, considering the capital intensities are industry-specific. In addition, unemployment remains affected, similar to what other writers stated. Gumata and Ndou evaluated another category of researchers by combining the two

production technologies (with constant returns), two factors (with constant returns), and two countries [14]. The study revealed that exports or output was decreased by the increase in minimum wages, specifically labor-intensive goods. However, the exports of capital-intensive goods keep increasing.

According to Sun, Tian, and Zhang, the country can specialize in the exports and production of local firms by imposing a sufficient higher minimum wage [15]. In other words, there will be higher productivity in labor-intensive goods; thus, the industrial exports will increase [16], [17]. Similarly, Jiao, Liu, and Liu added that the exports would continue boosting for a longer time [18]. However, Hau, Huang, and Wang concluded that firms' exports would decline with the increase in the local minimum wage [19]. Interestingly, it was found that minimum wage and industrial output were positively associated. It shows clearly an increase in the welfare and consumption of customers due to an increase in the minimum wage in the closed economy.

Along with these scholars, there were some other remarkable studies that seemed to have similar findings. Nidhiprabha has investigated the relationship between minimum wage and exports in Thailand [20]. It was revealed how this relationship works in the Asian region. It was observed that a high wage rate would not harm the industry as long as labor productivity rises in line with increasing wage rates. Industries are likely to suffer when unemployment rises rapidly with the increase in the wage rate. However, if labor productivity rise is in line with increasing wage rates, then the economy is likely to experience a rise in exports due to improved productivity. This assures that a positive correlation exists between the minimum wage rate and exports. In another study, Jermsittiparsert et al. studied how minimum wages influence economic competitiveness [21]. The research revealed that export has a long-run relationship with minimum wage [22]. Plus, it was observed that minimum wage has a causal relationship with exports. This suggests that an increase in the minimum wage is likely to influence the level of exports and, in return, will enhance economic competitiveness.

3 Research Aim

This paper aims to analyze the effects of minimum wages on the Industrial exports of Jordan. The findings can be used by scholars, industrialists,

students, firms, managers, and policymakers, and the results can further be utilized in policy implementation.

4 Dataset and Results

4.1 Dataset

The main dataset for this study was retrieved from World Bank and World Economic Outlook Databases for the secondary data analysis. For the primary data, a close-ended survey was conducted from 142 participants working in the industrial sector of Jordan. The demographics and the results of the collected data have been indicated in this section. SPSS version 26, Excel, and Nvivo were used to analysis the data.

4.2 Demographics

A total of 142 participants were included in the survey of which 85.2% were males and only 14.8% were females.

Table 1. Gender

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	21	85.2	85.2	85.2
	Male	121	14.8	14.8	100.0
	Total	142	100.0	100.0	

The age was categorized into four divisions and it was found that people between 40 to 65 years were the highest in numbers (37.3 %), followed by the age group between 20 to 30 years, representing 32.4 % of the people. In addition, the lowest number of users fell in the age group 15 to 20 years which were only 7.7 % of total individuals. In last, around 22.5 % of individuals aged 30-40 years.

Table 2. Age

Age					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	15-20 years	11	7.7	7.7	7.7
	20-	46	32.4	32.4	40.1

	30 years				
	30-40 years	32	22.5	22.5	62.7
	40-65 years	53	37.3	37.3	100.0
	Total	142	100.0	100.0	

4.3 Content Analysis

4.3.1 Minimum Wages

The minimum wage tends to be fairly paid in Jordan. Similarly, the participants of the study agreed to this study's proposition. 73.9 % of the participants strongly agreed that wages were paid fairly in the country. Similarly, 19.7 % agreed, 5.6 % remained neutral. However, only 0.7 % disagreed with the statement. Hence, it is found that wages are paid fairly within the country.

Table 3. There is a fair minimum wage paid

There is a fair minimum wage paid					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	1	.7	.7	.7
	Neutral	8	5.6	5.6	6.3
	Agree	28	19.7	19.7	26.1
	Strongly Agree	105	73.9	73.9	100.0
	Total	142	100.0	100.0	

Moreover, the participants were asked regarding the implementation of the minimum wage laws and it was found that the laws were strictly followed within Jordan. It is found that (around 78.9 %) strongly agreed that laws were followed, 15.5 % agreed, 3.5 % remained neutral. In contrast, 2.1 % disagreed that

wage laws were followed. In brief, it can be said that minimum wage laws are followed in Jordan.

Table 4. Minimum wage laws are followed

Minimum wage laws are followed					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	3	2.1	2.1	2.1
	Neutral	5	3.5	3.5	5.6
	Agree	22	15.5	15.5	21.1
	Strongly Agree	112	78.9	78.9	100.0
	Total	142	100.0	100.0	

The respondents were then asked regarding the motivation linked to higher minimum wages and it was found that around 58.5 % strongly agreed that wages tend to be a satisfactory factor for performance. 23.2 % agreed, 14.1 % remained neutral to the statement, and 2.8 % disagreed. However, 1.4% strongly disagreed with the research's proposition that higher minimum wages encourage employees to work more. In sum, it is revealed that higher minimum wages increase the performance of employees, which leads to a greater output for the firm. Jordan is a developing economy. In such an economy, minimum wages impact higher on employee motivation. Akgunduz et al. stated that minimum wages affect the workers more in developing countries [12]. Similarly, this study's results indicated that higher minimum wages impact the motivation of employees more which are in congruence to the findings of Akgunduz et al.

Table 5. Higher minimum wages motivate employees to work more

Higher minimum wages motivate employees to work more					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	2	1.4	1.4	1.4
	Disagree	4	2.8	2.8	4.2

	ee				
	Neutral	20	14.1	14.1	18.3
	Agree	33	23.2	23.2	41.5
	Strongly Agree	83	58.5	58.5	100.0
	Total	142	100.0	100.0	

Bai et al. found that minimum wage creates unemployment more [9]. This is due to an increase in the cost of labor for the firms, which as a result, limits the daily wages. Consequently, an aggregate action of firms leads to higher unemployment. Similarly, it was found that minimum wages raised products prices. The increasing cost of labor forces firms to raise their prices to meet the firm’s economic objective. One factor remains the same that has been highlighted by the studies earlier. It is concluded in the past studies that minimum wages increase firm costs. Similarly, this study also examined this perspective. It was found that (around 52.1 %) strongly agreed that wages tend to increase the firm costs. 25.2 4 agreed, and 20.4 % remained neutral to the statement. However, 2.1 % disagreed with the research’s proposition that higher minimum wages increase firm costs. In sum, it is revealed that higher minimum wages boost the labor costs at first, which negatively affects the industrial output.

Table 6. Minimum wages increase the firm costs

Minimum wages increase the firm costs					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	3	2.1	2.1	2.1
	Neutral	29	20.4	20.4	22.5
	Agree	36	25.4	25.4	47.9
	Strongly Agree	74	52.1	52.1	100.0
	Total	142	100.0	100.0	

4.3.1 Industrial Exports

Firms’ productivity of its workers leads to higher output for the firm, which then becomes an aggregate industrial export the country. Minimum wages tend to be the beneficial factor for the homes country to

increase the level of exports. Similarly, this study found that (around 24.6 %) of participants strongly agreed that minimum wages increase the productivity of workers. 33.8 % agreed, 29.6 % remained neutral to the statement, and 3.5 % disagreed. However, 8.5% strongly disagreed with the research’s proposition that higher minimum wages increase productivity. In sum, it is revealed that higher minimum wages increase the productivity of labor, which can lead to a positive contribution to industrial exports. According to Bai et al., most of the time, minimum wages are likely to enhance productivity and competitiveness among firms [9]. Hence, the study’s findings are aligned with the research conducted by previous authors.

Table 7. Minimum wages increase productivity

Minimum wages increase productivity					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	12	8.5	8.5	8.5
	Disagree	5	3.5	3.5	12.0
	Neutral	42	29.6	29.6	41.5
	Agree	48	33.8	33.8	75.4
	Strongly Agree	35	24.6	24.6	100.0
	Total	142	100.0	100.0	

The focus on the minimum wages and their impact on exports remains a prominent topic in literature. This study has tried to evaluate its effects on industrial exports. Interestingly, (around 51.4 %) of participants strongly agreed that an increase in minimum wages leads to an increase in exports. 28.9 % agreed, 15.5 % remained neutral to the statement, and 2.1 % disagreed. In contrast, only 2.1% strongly disagreed with the study’s statement that increases in minimum wages are likely to increase firms’ exports. In brief, it is concluded that governments can increase industrial exports by increasing minimum wages. However, these results contradict the findings of Artuc et al., who found that that exports or output was decreased by the increase in minimum wages, specifically labor-intensive goods [13]. However, the exports of capital-intensive goods keep increasing. In

another way, the study of Sun, Tian, and Zhang have supported that implementation of minimum wages may increase the industrial output or exports [15].

Table 8. If the minimum wage is increased, firm exports will likely increase

If the minimum wage is increased, firm exports will likely increase					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	2.1	2.1	2.1
	Disagree	3	2.1	2.1	4.2
	Neutral	22	15.5	15.5	19.7
	Agree	41	28.9	28.9	48.6
	Strongly Agree	73	51.4	51.4	100.0
	Total	142	100.0	100.0	

This study has added that minimum wages enhance the efficiency of labor at the very start. Similarly, around 45.8 % of participants strongly agreed that minimum wages enhance the efficiency of labor. 21.8 % agreed, 23.9 % remained neutral to the statement, and 4.2 % disagreed. In contrast, only 4.2 % strongly disagreed with the study’s statement that minimum wages tend to boost the efficiency of labor. In conclusion, it is found that firms can increase the efficiency of labor by increasing minimum wages. Furthermore, Meltiz stated that a firm’s competitiveness tends to be a very important factor in its exports’ success [10]. The study concluded that the industry could achieve such competitiveness by implementing higher minimum wages. Similarly, this study has found that minimum wages increase the efficiency of labor. This efficiency ultimately leads to higher firm performance and industrial exports.

Table 9. Minimum wages enhance the efficiency of labor

Minimum wages enhance the efficiency of labor					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	7	4.9	4.9	4.9
	Neutral	29	20.4	20.4	25.4
	Agree	42	29.6	29.6	54.9
	Strongly Agree	64	45.1	45.1	100.0
	Total	142	100.0	100.0	

Valid	Strongly Disagree	6	4.2	4.2	4.2
	Disagree	6	4.2	4.2	8.5
	Neutral	34	23.9	23.9	32.4
	Agree	31	21.8	21.8	54.2
	Strongly Agree	65	45.8	45.8	100.0
	Total	142	100.0	100.0	

In last, the study focused on asking participants whether their firms have increased or not by marking a minimum wage. As a result, research participants (around 45.1 %) indicated and strongly agreed that minimum wage has increased exports of their firm over time. 29.6 % agreed, and 20.4 % remained neutral. However, 4.9 % disagreed with the study’s proposition. In brief, it is found that a higher minimum wage has increased exports of different firms that led to an increase in industrial exports. These results are supported by Sun et al., who have added that the country can specialize in the exports and production of local firms by imposing a sufficient higher minimum wage [15]. In brief, there will be higher productivity in labor-intensive goods; thus, industrial exports will increase.

Table 10. Higher minimum wages have increased our firm’s output

Higher minimum wages have increased our firm’s output					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	7	4.9	4.9	4.9
	Neutral	29	20.4	20.4	25.4
	Agree	42	29.6	29.6	54.9
	Strongly Agree	64	45.1	45.1	100.0
	Total	142	100.0	100.0	

4.4 Descriptive Statistics

This section of the research focuses on the summary of variable responses to make an analysis and draw findings. These findings help to identify to what extent responses differ from the average response. In addition, it identifies the non-supporting and supporting data. The results of this study are discussed below.

4.4.1 Minimum Wages

Element 02 of the minimum wages section has the highest mean value (around 4.71) with a moderate dispersion in the responses (around .637). This means that response of participants regarding the minimum wage law implementation directs towards strongly agree. Similarly, the mean value of all variables is greater than 4, which indicates that all the respondents have agreed to this study's statements in the majority.

Table 11. Descriptive Statistics

Descriptive Statistics							
	N	Ra n	Mi n	Ma x	Mea n	Std. Dev	Var
There is a fair minimum wage paid	14 2	4	1	5	4.66	.65 1	.42 4
Minimum wage laws are followed	14 2	3	2	5	4.71	.63 7	.40 5
Higher minimum wages motivate employees to work more	14 2	4	1	5	4.35	.92 3	.85 2
Minimum wages increase the firm costs	14 2	3	2	5	4.27	.86 0	.74 0
Valid N (list wise)	14 2						

4.4.2 Industrial Exports

Moreover, 2nd element of the industrial export tends to have the highest mean value (around 4.25) with (around .941) standard deviation. This indicates that, on average, participants have agreed that if minimum wages are increased, it leads to higher industrial exports. Similarly, most sample responses have a mean value close to 4 with lower dispersion in them. In sum, the research participants have supported that minimum wages influence industrial exports positively.

Table 12. Descriptive Statistics

Descriptive Statistics							
	N	Ra n	Mi n	Ma x	Mea n	Std. Dev	Var
Minimum wages increase productivity	14 2	4	1	5	3.63	1.14 6	1.31 4
If minimum wage is increased, firm exports will likely increase	14 2	4	1	5	4.25	.941	.886
Minimum wages enhances productivity of labor	14 2	4	1	5	4.01	1.12 0	1.25 5
Higher minimum wages have increased our firm's output	14 2	3	2	5	4.15	.914	.836
Valid N (list wise)	14 2						

4.5 Matrix of Correlations

The matrix of correlation helps to identify the association among variables. Similarly, it is part of econometric analysis. This study has indicated the following relationship between minimum wages and industrial exports.

Table 13. Correlations

Correlations			
		Minimum Wages	Industrial Exports
Minimum Wages	Pearson Correlation	1	.411**
	Sig. (2-tailed)		.000
	N	142	142
Industrial Exports	Pearson Correlation	.411**	1
	Sig. (2-tailed)	.000	
	N	142	142

** . Correlation is significant at the 0.01 level (2-tailed).

First, there is a very significant and positive correlation between minimum wages and industrial exports. It is found that the significance value of the relationship between industrial exports and minimum wages is .000. In addition, the Pearson correlational value is .411, which means there is a significant and moderate correlation between these two variables.

4.6 Reliability and Validity

The validity and reliability of the data are considered very important before the analysis. Hence, the results for such tests are written below.

Table 14. Reliability Statistics

Reliability Statistics			
	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Minimum Wages	.706	.712	4
Industrial Exports	.642	.641	4

The minimum wages section has Cronbach's Alpha value greater than 0.7, which indicates that data is reliable to be run for the tests. Similarly, Cronbach's alpha of industrial exports section is also higher than 0.6; hence it is also valid data. Moreover, the thumb rule of the validation of data is considered 0.5 for validity. In sum, the value of both variables is greater than 0.5.

4.7 ANOVA

ANOVA refers to the analysis of variance. It is used to indicate whether there is a significant difference among the sample respondent or not. The significant difference is counted as favorable and validates the data. Similarly, the findings of such analysis are attached following.

Table 15. ANOVA with Friedman's Test

ANOVA with Friedman's Test						
Minimum Wages						
	Sum of Squares	df	Mean Square	Friedman's Chi-Square	Sig	
Between People	181.248	141	1.285			
Within People	Between Items	20.681a	3	6.894	48.743	.000
	Residual	160.069	423	.378		
	Total	180.750	426	.424		
Total	361.998	567	.638			
Grand Mean = 4.50						
a. Kendall's coefficient of concordance W = .057.						
Industrial Exports						
Between People	291.706	141	2.069			

Within People	Between Items	31.977a	3	10.659	39.456	.000
	Residual	313.273	423	.741		
	Total	345.250	426	.810		
Total		636.956	567	1.123		
Grand Mean = 4.01						
a. Kendall's coefficient of concordance W = .050.						

Both variables (minimum wages and industrial exports) have a significance value (p-value) less than 0.05, which indicates that there is a significant difference among the participants' responses. Moreover, the F-statistics value for minimum wages and industrial export is 48.743 and 39.456, respectively. This value is higher, which indicates that research participants have higher varying responses to each other.

4.8 Regression Analysis

Regression analysis helps to understand the impact of independent variables on a dependent variable. In addition, it gives an overview of how much a variable explains another variable. This test is used to calculate the significance level and to what extent one variable influences another. The following sections evaluate the major part of econometric analysis.

Table 16. Model Summary

Model Summary									
Model	R	R Squared	Adjusted R Squared	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.411a	.169	.163	.65795	.169	28.459	1	140	.000

a. Predictors: (Constant), Minimum Wages

The model summary suggests a p-value less than 0.05, which indicates that the model is fit and significant to be used. In addition, the value of r squared is .169, which means that 16.9 % of the dependent variable is explained by the independent variable. In other words, changes in minimum wages create 16.9 % variations in industrial exports.

Table 17. ANOVA

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.320	1	12.320	28.459	.000b
	Residual	60.606	140	.433		
	Total	72.926	141			

a. Dependent Variable: Industrial Exports
b. Predictors: (Constant), Minimum Wages

Moreover, there are significant differences among the responses of minimum wages and industrial exports. The p-value is less than 0.05. Hence, the model is fit.

Table 18. Coefficients

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.663	.443		3.753	.000
	Minimum Wages	.521	.098	.411	5.335	.000

a. Dependent Variable: Industrial Exports

In last, coefficients indicate the extent of influence. This table fulfills the objective of the research to evaluate the effects of minimum wages on industrial exports. The findings indicate that minimum wages have a p-value of 0.000, which is less than 0.05. This means that minimum wages significantly influence industrial exports. Moreover, the standardized beta coefficient of minimum wages is .411, which is

moderate. In other words, 1 % change in minimum wages brings about 41.1% changes in industrial exports. Therefore, it is concluded that there is a significant and positive influence of minimum wages on industrial exports.

4.9 Secondary Data Analysis

The objective of this study was to investigate the impact of Minimum Wages on Jordan’s Industrial Exports. Exports can be influenced by various factors; here, specific attention has been given on evaluating the effects of minimum wages on industrial development in Jordan. Hence, the data for minimum wages and exports in Jordan was collected. World Bank and World Economic Outlook Databases were used to gather data. For Investigating the impact of minimum wages on Jordan’s industrial exports, two statistical tests were used, including regression and

correlation. These tests assessed the impact of minimum wages on Jordan’s industrial exports. Final conclusions were made based on the results of these two tests.

The table shown below represents the descriptive statistics. This shows that 22 observable values were tested to investigate the impact of Minimum Wages on Jordan’s Industrial Exports. The exports ranged from USD 3.5 Billion to USD 16.2 Billion during 1999-2020. On the other hand, the Minimum wage rate ranged from USD 101 to USD 315 during 1999-2020. The average exports were USD 10.3 Billion, and the average minimum wage rate was USD 208.7. Later 5% trimmed mean close to the normal mean. This suggests that this data is less likely to be influenced by outliers.

Table 19. Descriptive Statistics

Descriptive Statistics				
		Statistic		Std. Error
Export in billion	Mean	10.376		.9509
	95% Confidence Interval for Mean	Lower Bound	8.398	
		Upper Bound	12.353	
	5% Trimmed Mean	10.438		
	Median	11.880		
	Variance	19.893		
	Std. Deviation	4.4601		
	Minimum	3.5		
	Maximum	16.2		
	Range	12.6		
	Interquartile Range	8.6		
	Skewness	-.402		.491
	Kurtosis	-1.476		.953
Minimum Wage Rate	Mean	208.773		16.6952
	95% Confidence Interval for Mean	Lower Bound	174.053	
		Upper Bound	243.492	
	5% Trimmed Mean	208.828		
	Median	213.500		
	Variance	6132.089		
	Std. Deviation	78.3077		
	Minimum	101.0		

	Maximum	315.0	
	Range	214.0	
	Interquartile Range	152.5	
	Skewness	-.035	.491
	Kurtosis	-1.652	.953

To assess the impact of Minimum Wages on Jordan's Industrial Exports, it was required to assess the correlation between the variables. Pearson correlation was used to assess the relationship between the variables [23]. This technique helps in examining the relationship between the variables along with their strength and direction [24]. Results show whether the relationship between the variable was significant or not. At a 5% significance level, P-value (sig.) is less than alpha. Data provide sufficient evidence to

conclude that there is a significant positive correlation exists between two variables (i.e., Export and Minimum Wage Rate). This depicts that is a strong positive relationship exists between Exports in Jordan and the minimum wage rate in Jordan. The correlation coefficient was equal to .916. This proves that there is a strong positive relationship between the variables. This suggests that an increase in the minimum wage rate will also lead to an increase in exports in Jordan.

Table 20. Correlation Analysis

Correlations			
		Export billion	Minimum Wage Rate
Export billion	Pearson Correlation	1	.916**
	Sig. (2-tailed)		.000
	N	22	22
Minimum Wage Rate	Pearson Correlation	.916**	1
	Sig. (2-tailed)	.000	
	N	22	22

Correlation is significant at the 0.01 level (2-tailed).

The second technique used to investigate the relationship between exports and minimum wage rate was regression analysis. It is a statistical process for examining the relationship between a dependent variable and an independent variable [25]. The table provided below represents the model summary of the regression model. The R-square value is around 0.84. This indicates that 84% of the variance in the dependent variable is caused by the independent variable. In other words, 84% of the variance in exports can be attributed to the minimum wage rate.

		e		
1	.916 ^a	.840	.832	1.8303
a. Predictors: (Constant), Min Wage Rate				

The table provided below represents the regression model fitness. As the p-value for the F-test is less than the significance level, the sample data provide sufficient evidence to conclude that the regression model fits the data.

Table 21. Regression Analysis Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate

Table 22. Regression Analysis ANOVA Table

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	350.746	1	350.746	104.697	.000 ^b
	Residual	67.002	20	3.350		
	Total	417.748	21			
a. Dependent Variable: Export billion						
b. Predictors: (Constant), Min Wage Rate						

The decision rule for regression analysis suggests that if the p-value is less than the significance level (0.05), there is a significant relationship between the variables. Results provided in the table below suggest that at a 5% significance level, P-value (sig.) is less than alpha. At a 5% significance level, the data provide sufficient evidence to conclude that there is a significant relationship exist between the two variables. In other words, data provide sufficient evidence to conclude that there is a significant relationship exist between the minimum wage rate and exports.

Table 23. Regression Analysis Coefficients

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
		1	(Constant)	-.520		
1	Minimum Wage Rate	.052	.005	.916	10.232	.000
a. Dependent Variable: Export billion						

5 Discussion

Findings revealed that there is a strong positive correlation exists between Exports in Jordan and the minimum wage rate in Jordan. The correlation coefficient was equal to .916. This proves that there is a strong positive relationship between the

variables. This suggests that an increase in the minimum wage rate will also lead to an increase in exports in Jordan. These findings contradict the observations of Bai et al. [9]. He claimed that minimum wages influence various elements, including exports, unemployment, labor substitution, and product prices. He claimed that the minimum wage influences industrial exports negatively, as it increases the cost of labor, leading to an increase in products prices. As a result, exports tend to decline due to higher prices. In brief, the exports of labor-intensive goods are declined due increase in the minimum wage. Bai et al. claim that sometimes, it becomes a complex situation, as higher minimum wage impacts negatively on the firms' performance and objective of economic boost remained unfulfilled [9].

However, this study's observations seem to be in line with the findings of Akgunduz et al. [12]. They claimed that the minimum wage motivates workers to work more productively. Moreover, the developing countries are structured with a major population that belongs to the middle class; thus, sometimes minimum wages increase the productivity of employees, which ultimately leads to higher firm performance. Consequently, the aggregate supply and exports of the country increase to a larger extent. Sun, Tian, and Zhang are also aligned with similar views [15]. They believe that the country can specialize in the exports and production of local firms by imposing a sufficient higher minimum wage. This means that there will be higher productivity in labor-intensive goods; thus, the industrial exports will increase. As a result, exports will continue boosting for a longer time. They also experienced during the analysis that minimum wage and industrial output were positively associated. This concludes that an increase in the welfare and

consumption of customers is due to an increase in the minimum wage rate.

Results for regression revealed that there is a significant relationship exist between the minimum wage rate and exports. These results also seem to be in harmony with the findings of Aghion et al., who supported that influence of minimum wages is considered essential in developing countries [26]. They studied that the developing countries are structured with major population that belongs to the middle class; thus, sometimes minimum wages increase the productivity of employees, which ultimately leads to higher firm performance. Consequently, the aggregate supply and exports of the country increase to a larger extent. In brief, the minimum wage motivates workers to work more productively. The results of Jermsittiparsert et al. seem to be in harmony with this study's results [21]. Jermsittiparsert et al. discovered that export has a long-run relationship with minimum wage. The author also claimed that minimum wage has a causal relationship with exports. This suggests that an increase in the minimum wage is likely to influence the level of exports and, in return, will enhance economic competitiveness. A similar relationship has been observed in the findings of this study.

Moreover, these results are aligned with the observations of Nidhiprabha, who investigated the relationship between minimum wage and exports in Thailand [20]. He observed that a high wage rate would not harm the industry as long as labor productivity rises in line with increasing wage rates. Industries are likely to suffer when unemployment rises rapidly with the increase in the wage rate. However, if labor productivity rise is in line with increasing wage rates, then the economy is likely to experience a rise in exports due to improved productivity. This assures that a positive correlation exists between the minimum wage rate and exports.

6 Conclusion

The objective of this paper was to investigate the impact of minimum wages on Jordan's industrial exports. Exports can be influenced by various factors, but this study has considered evaluating the effects of minimum wages on industrial development in Jordan. Previously, authors have provided a contradicted view, where some authors have observed a relationship between the minimum wage rate and exports. At the same time, other authors concluded them as unrelated variables. The statistical tools used

in this study to assess the impact of minimum wages on Jordan's industrial exports concluded that there exists a relationship between two variables. Findings revealed that there is a strong positive correlation exists between Exports in Jordan and the minimum wage rate in Jordan. The value of the correlation coefficient depicted that there is a strong positive relationship between the variables. Plus, regression analysis revealed that there is a significant relationship exist between the minimum wage rate and exports. Based on these two results, it was concluded that a relationship exists between the minimum wage rate and exports in Jordan. This relationship appears to be positive, which shows that an increase in the minimum wage rate will increase the country's exports level.

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