The Impact of Capacity Utilization on Inflation and Unemployment in Jordan during the Period (2000-2020)

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Abstract
This study aimed to know the impact of capacity utilization on inflation and unemployment in Jordan during the period (2000-2020), and to provide some recommendations that would enhance the positive effects of capacity utilization in Jordan and reflecting its advantages on inflation and unemployment, and the descriptive approach was followed and the analytical, and the use of statistical methods by applying the necessary tests for the model prepared for that, such as the unit root test, the time-series stability test for the study variables, the autocorrelation test, and the homscedasticity the results of study showed there are absence of a significant effect with a statistical significance for the ability On inflation in Jordan, and the presence of a statistically significant impact on the ability to unemployment in Jordan, the study recommended the need to focus on increasing capacity utilization (full employment)
Keywords: Capacity Utilization, Inflation, Unemployment.

Introduction
In light of the development of global economies and the increase in the problems of inflation and unemployment, as inflation has become more than permissible rates and unemployment has become at its highest levels, countries are striving to find solutions to meet these challenges. Facing economic problems and working to solve or mitigate them.
Jordan, like other developing countries, suffers from high rates of inflation and unemployment, as inflation and unemployment often negatively affect the Jordanian economy, through high prices and high unemployment rates, which leads to a decrease in aggregate demand and this negatively affects the gross domestic product.
These economic effects can be avoided by exploiting the productive capacity due to the existence of a clear relationship to the exploitation of the productive capacity and both inflation and unemployment. When the productive capacity is increased, this means an increase in production and optimal exploitation of resources, and this affects unemployment

negatively, by creating new job opportunities as a result of its increase. As for inflation, when the productive capacity increases, this means that the state of purchase is rising and increasing, as the main objective of the producer is to achieve the maximum possible amount of profits. This study came to show the effect of exploiting the capacity on inflation and unemployment in Jordan during the study period.

The problem of the study is also represented in the process of trying to remove the imbalance from the levels of unemployment and inflation that Jordan suffers from, like other countries, as the high rates of inflation and unemployment negatively affect the performance of the economy as a whole, as this imbalance is one of the most important challenges that developing countries suffer from, including Jordan. Maintaining a reduction in the levels of inflation and unemployment, it is necessary to work on increasing the productive capacity.

The importance of the study stems from the importance of measuring the impact of exploiting the ability to inflation and unemployment in Jordan, in order to contribute to assisting economic decision-makers in making decisions at the right time, for developing countries it is evident through the increase in inflation and unemployment rates, where the importance of the study lies in clarifying the negative and positive effects For each of the variables, for decision makers in order to benefit from the desired results to rely on in the decision-making process and to clarify the impact between capacity utilization, inflation and unemployment in the developing country, it is in dire need of applied studies that contribute to revealing the variables that have a role in influencing inflation rates And unemployment, which in turn reflects positively or negatively on the Jordanian economy.

This study aims to estimate and analyze the effect of exploiting the capacity on inflation and unemployment in Jordan, in order to find out the importance and impact of exploiting the productive capacity of this country on unemployment and inflation rates, in addition to working on developing appropriate solutions that achieve a decrease in inflation and unemployment rates. To achieve these goals, the study deals with this impact of by estimating the standard model during the study period.

Literature Review
Capacity Exploitation
Capacity in terms of exploitation and measurement is one of the most recent topics, which has attracted the attention of researchers and economists.

Countries aim to avoid wasting and disrupting available resources, which is an important indicator of the impact of capabilities on other variables of those countries, and is also the backbone of their economic progress.

Capacity utilization is one of the important economic indicators that affect inflation and unemployment rates, which represents an important role in the process of determining that relationship (the relationship between capacity utilization and inflation and unemployment rates).

Exploiting capacity also has an important role in the process of expanding the production base of all economic sectors of the state at the micro and macro levels, as it is a competitive advantage for countries and a key to growth and success, in addition to being directly related to the workforce and most of the economic processes taking place in countries leading to the renaissance and progress of those countries.

Empirical Evidence

The study of Sakarya and Yurtoglu (2000) aimed to find out the relationship between capacity utilization and inflation in Turkey. It explained the relationship between inflation and the rate of capacity utilization in a similar way to the study of the relationship between inflation and unemployment. The relationship between capacity utilization and unemployment follows the Phillips curve and indicates the duality between unemployment and capacity utilization. This study used a Hodrick HP-filter. filter to find the possible output. The results showed that the natural capacity utilization rate ranges between 79%-80%, and if the capacity utilization rate exceeds this percentage, it leads to a rise in inflation.

Nahuis (2010) calculate the non-accelerating inflation rate of capacity utilization as a demand indicator for inflation for eight European countries. Confidence intervals have increased over time which reduces the usefulness of NAIRCU somewhat, and deviations from the equilibrium level in capacity utilization also affect inflation significantly.

The study of Madhavan and Kumaravelu (2014) aimed to analyze the capacity utilization rate, and this study used the Wharton index and the minimum ratio of capital to production to measure the capacity utilization rate. ratio of capital to production.

Soliman (2017) aimed at the use of capabilities and that it is an important factor in determining unemployment and wages. This proposal is based on the idea that the use of capabilities helps in determining the future course of the economy and is an important factor in the economy's response to various supply and demand shocks. The study concluded that the use of capabilities and unemployment relations, which were estimated and tested using data covering 1997 to 2016 for three countries in West Africa, the results indicate that long-term unemployment and capacity utilization have a significant effect on unemployment. Policies to boost production and investment may allow the unemployed to regain access to the labor market.

Ugbaka and Abyme (2018) This study aimed to demonstrate the impact of capacity utilization on unemployment in Nigeria between 1981 and 2016 by using secondary data for time series using least square regression techniques in two stages, annual data using standard analysis and E-views program, where the results showed a positive relationship between capacity utilization and unemployment in Nigeria , and the positive correlation was statistically significant at the 5% level (P < 0.05). This conclusion is contrary to the economic argument that supports the intuition that the relationship between capacity utilization and unemployment is negative, the result shows that an increase in capacity utilization by 100% leads to a 3.4% increase in unemployment and this study recommended that the government should put in place policies geared towards productive employment because this would To reduce the rate of unemployment and underemployment in the country, the government must largely focus on small and medium-sized enterprises to contribute to the growth of employment in the broad scope of business.

After reviewing the previous studies related to the subject of the study, the researcher found that most of the Arab studies were absent from the exploitation of the ability, as the researcher did not find any study that dealt with the impact of the exploitation of the ability on inflation and unemployment in Jordan specifically, so what distinguishes this study according to the knowledge of the researcher is that it is one of the few studies Which measures this effect during the time period (2000-2020).

The study tests the following hypotheses:

H0: There is no statistically significant effect of the capacity on inflation at a significant level (α≤0.05) in Jordan for the period (2000-2020).
H0: There is no statistically significant effect of the capacity on unemployment at a significant level (α≤0.05) in Jordan for the period (2000-2020).

Methodology and Data
Data
Annual time series data were used in relation to the study variables represented by capacity utilization, inflation and unemployment from the database of the Central Bank of Jordan.

Methodology
The descriptive and analytical approach was used and the statistical methods were used through the application of the necessary tests for the model prepared for that, and the following function explains and the standard model is adopted in this study

$$(1)\ Inf = \beta_0 + \beta_1\ EPC + u_i$$
$$(2)\ Une = \beta_0 + \beta_1 Epc + u_i$$

where:
• EPC (Capacity)
• Inf: inflation
Une: Unemployment
• β_0: hard limit
• β_1: power factor
• U_i: standard error

Study variables Definitions
Independent variable

Capacity Exploitation: It is the use of all resources in the maximum possible way in order to obtain the best returns achieved during a specific period of time, taking into account the cost paid to achieve the desired goal of employing capacity utilization. Data for this variable was obtained from the annual reports of the Central Bank. Jordanian, which is measured through the ratio of capital to production (capital formation).
Dependent Variables
- Inflation: It means the continuous increase in the prices of goods and services, whether this increase is a result of an increase in the amount of money in a way that makes it greater than the volume of available goods, or it is a result of an increase in production that exceeds total demand, or because of an increase in production costs. The data are from the World Bank database and are percentages.
- Unemployment (dependent variable): It disables all age groups who are able to work, with continuous search for it, with no access to opportunities without paying attention to wages, as their main goal was work, regardless of the negatives that accompany it, and the data was taken from the Jordanian Ministry of Labor and General Statistics, which is about a percentage.

Regression and results Discussion
Testing the stability of the time series for the study variables
In order to test the stability of the time series for the study variables, the developed Dickey Fuller test and Phillips Peron test were used to ensure the stability of the time series, as the instability of the time series leads to false regression results. In Table (1) the inflation variable (INF) and the capacity variable (EPC) are not stable at the level using the Phillips-Peron test and the developed Dickie Fuller test, and therefore it is necessary to take the first difference for both variables and then re-test, and after taking the first difference it turns out that the two variables They became stable using the Phillips-Peron test and the developed Dickie Fuller test, while the unemployment variable (UNE) was unstable at the level and at the first difference, and therefore it is necessary to take the second difference. After taking the second difference, the variable became stable using the two tests (the developed Dickie-Fuller and Phillips-Peron).

Table No. (1)
Phillips Burn Test (PP) and Developed Dickey Fuller Test (ADF)

PP	ADF		Variable
0.5070	0.1268	level	EPC
0.0022	0.0022	1std	
0.9750	0.8312	level	INF
0.0348	0.0413	1std	
0.9985	0.9980	level	UNE
0.2453	0.2082	1std	
0.0115	0.0059	2ndd	

Source: Prepared by the researcher - E-Views software output

Regression results for the first hypothesis:
Simple linear regression analysis is used to study the effect of an independent variable on a dependent variable. The independent explanatory variable may be continuous or categorical. The following are the results of regression to test hypotheses.

Table (2)
The results of the regression analysis

Dependent Variable: INF			
Method: Least Squares			
Date: 06/25/22 Time: 10:47			
Sample (adjusted): 2001 2020			
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
EPC	0.002707	0.001524	1.775543	0.0975
R-squared	0.150758	Mean dependent var		0.560000
Adjusted R-squared	0.150758	S.D. dependent var		2.881170

Source: prepared by the researcher based on the results of the reviews

Table No. (2) shows the regression results. It is clear from the results: There is no significant and statistically significant effect of the ability to inflation in Jordan, as the probability value

was 0.0975, which is greater than 5%, and therefore we accept the null hypothesis H01: There is no statistically significant effect of the ability to inflation at a significant level ($\alpha \leq 0.05$). In Jordan for the period (2000-2020), and we reject the alternative hypothesis that there is a statistically significant effect at the significance level ($\alpha \leq 0.05$) of the inflation capacity in Jordan for the period (2000-2020).

Autocorrelation test of the first hypothesis
The Breusch-Godfrey test was used to ensure that there is no autocorrelation between errors, and it is evident from the results in Table (3) and through the probability value, which was greater than 5%, that there is no autocorrelation between errors, where the null hypothesis is accepted, which states that there is no autocorrelation errors, and rejecting the alternative hypothesis that there is an autocorrelation between errors.

Table (3)
Autocorrelation test results

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	1.069162	Prob. F(2,17)	0.4432
Obs*R-squared	0.000000	Prob. Chi-Square(2)	1.0000
Dependent Variable: RESID			
Method: Least Squares			
Date: 06/25/22 Time: 10:53			
Sample: 2001 2020			

Source: prepared by the researcher based on the results of the reviews

Homogeneity of variance test for the first hypothesis
The Breusch-Pagan-Godfrey test was used, as it can be seen from the results in Table No. (4) and through the value of significance, which was greater than 5%, to the homogeneity of error variance. Thus, the null hypothesis that states the homogeneity of error variance is accepted, and the alternative hypothesis that states that is homogeneous is rejected. On the heterogeneity of the error variance.

Table (4)
Results of the homogeneity of variance test

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	0.425639	Prob. F(1,16)	0.5234
Obs*R-squared	0.466436	Prob. Chi-Square(1)	0.4946
Scaled explained SS	1.306390	Prob. Chi-Square(1)	0.2530
Dependent Variable: RESID^2			
Method: Least Squares			
Date: 06/25/22 Time: 10:50			
Sample: 2000 2020			

Source: prepared by the researcher based on the results of the reviews

The results of the regression for the second hypothesis:
Table (5)
The results of the regression analysis

Dependent Variable: UNE				
Method: Least Squares				
Date: 06/25/22 Time: 10:51				
Sample: 2000 2020				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.809718	1.597603	5.514336	0.0000
EPC	0.001256	0.000362	3.474256	0.0025
R-squared	0.388487	F-statistic		12.07045
Adjusted R-squared	0.356302	Prob(F-statistic)		0.002539

Source: prepared by the researcher based on the results of Eviews

The results show the following:
- There is a statistically significant effect of the capacity on unemployment in Jordan, as the probability value was 0.0025, which is less than 5%, and therefore we reject the null hypothesis H02: There is no statistically significant effect of the capacity on unemployment at a significant level ($\alpha \leq 0.05$) in Jordan for the period (2000-2020), and we accept the alternative hypothesis that there is a statistically significant effect of the capacity on unemployment at a significant level ($\alpha \leq 0.05$) in Jordan for the period (2000-2020).
It is also shown through the value of the modified coefficient of determination that 0.356 of the changes in unemployment are attributed to capacity.
It is evident through the probability test F (0.0025) the validity of the model to study the impact of the capacity to unemployment.

Test the autocorrelation of the second hypothesis
The Breusch-Godfrey test was used to ensure that there is no autocorrelation between errors. It is evident from the results in Table (6) and through the probability value, which was greater than 5%, that there is no autocorrelation between errors, where the null hypothesis is accepted, which states that there is no autocorrelation errors, and rejecting the alternative hypothesis that there is an autocorrelation between errors.

Table (6)
Autocorrelation test results

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	1.069162	Prob. F(2,17)	0.3653
Obs*R-squared	0.000000	Prob. Chi-Square(2)	1.0000
Dependent Variable: RESID			
Method: Least Squares			
Date: 06/25/22 Time: 10:53			
Sample: 2001 2020			

Source: prepared by the researcher based on the results of the reviews

Homogeneity of variance test for the second hypothesis

The Breusch-Pagan-Godfrey test was used, as it can be seen from the results in Table No. (7) and through the value of significance, which was greater than 5%, to the homogeneity of the variance of errors. Thus, the null hypothesis that states the homogeneity of the variance of errors is accepted, and the alternative hypothesis that states that is homogeneous is rejected. On the heterogeneity of the error variance.

Table (7)
Results of the homogeneity of variance test

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	0.215923	Prob. F(1,18)	0.6477
Obs*R-squared	0.237071	Prob. Chi-Square(1)	0.6263
Scaled explained SS	0.458992	Prob. Chi-Square(1)	0.4981
Dependent Variable: RESID^2			
Method: Least Squares			
Date: 06/25/22 Time: 10:53			
Sample: 2001 2020			

Source: prepared by the researcher based on the results of Eviews

Results and Recommendations

The study revealed the following

Through the framework and standard analysis, the study reached the following results:

1- There is no statistically significant effect of the capacity on inflation in Jordan, as the probability value was 0.0975, which is greater than 5%, and therefore we accept the null hypothesis H01: There is no statistically significant effect of the capacity on inflation at a significant level ($\alpha \leq 0.05$) in Jordan for the period (2000-2020), We reject the alternative hypothesis that there is a statistically significant effect at the significance level ($\alpha \leq 0.05$) of the capacity on inflation in Jordan for the period (2000-2020).

2- - There is a statistically significant effect of the capacity on unemployment in Jordan, as the probability value was 0.0025, which is less than 5%, and therefore we reject the null hypothesis H02: There is no statistically significant effect of the capacity on unemployment at a significant level ($\alpha \leq 0.05$) in Jordan for the period (2000-2020), and we accept the alternative hypothesis that there is a statistically significant effect of the capacity on unemployment at a significant level ($\alpha \leq 0.05$) in Jordan for the period (2000-2020).

The researcher recommends maintaining inflation rates through the use of economic policies (fiscal and monetary) in order to maintain the equilibrium level between the exploitation of capacity and inflation. Work to exploit capabilities more in order to contribute to reducing the unemployment rate.

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