The Impact of Changing the Price Index on the Stagnation of Industrial Production in Syria During the Crisis Phase (2011-2018)

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Abstract

The Syrian economy has witnessed accelerating inflation rates during the period 2011-2018 as a result of the war and economic sanctions that drained peoples' wealth, restricted the overall production sector, reduced productivity, deepened structural imbalances, and forced the macro economy into coercive austerity policies that increased the disparity and contradiction between demand and supply. This resulted in higher rates of productivity decline, and a state of contraction in aggregate supply, accompanied by the absence of a clear agenda for managing and containing the Syrian crisis, restoring economic activity, and revitalizing capital formation and production. The research concluded the necessity of mobilizing domestic savings, rationalizing their use, and adopting strategies that stimulate demand that are adapted to the war economy that Syria is witnessing.

Introduction

Recession is one of the most serious economic diseases that leave negative effects on the total productivity of industrial facilities, due to the challenges that these facilities face in obtaining their inputs at stable prices or in selling their products at remunerative prices. In the event that the overall economy enters the stage of inflationary stagnation, the negative impact on consumption and investment indicators will multiply, given that income becomes insufficient to meet aspects of total expenditure, due to the negative effects generated by it and the factors influencing it.

The Syrian economy has witnessed forced structural imbalances at the macroeconomic level, since 2011 until today, due to the predominance of a state of uncertainty regarding macroeconomic variables and levels of financial and monetary instability, including a rise in the general level of prices and a decline in productivity against the backdrop of unilateral economic measures and war conditions that limited the ability of income to cover spending on the purchase of goods and services. The accelerating security events and the US, Western

and Arab external pressures have affected the relationship between real productive activity, and widened the gap between supply and demand, as well as the relationship between production and inflation. Consequently, the economic, monetary and financial policies were not harmonious and effective in revitalizing the economy, improving income levels and preventing the deterioration of the exchange rate. These factors cannot be marginalized, as they lead to an increase in the overall economic burden to adapt to and overcome them, achieve economic stability and fight inflation. The continuation of sanctions increases pressure on production and income generation, and thus in transferring the impact to demand and spending levels, and this distorts the course of economic growth and development. One of the most important manifestations of the macro economy in Syria is the weakness of productive capacity, the imbalance of the relationship between production and consumption, between saving and investment, and the low marginal sufficiency of capital, and this has a negative impact on the paths of economic development due to the decrease in purchasing power in the first place, and the disruption of production and the erosion of savings, all of which have entered the macro economy into coercive austerity policies increased the severity of the discrepancy and contradiction between demand and supply, negatively affected the behavior of aggregate demand, and limited the ability of the productive apparatus (supply) to satisfy demand, in the absence of a clear methodology for managing and containing the Syrian crisis, restoring economic activity, and revitalizing capital formation and production.

Research Problem:
Since the factors causing the decline in output and the rise in inflation are multiple, it is necessary to research their determinants and causes, and how we must work to get out of the state of inflationary stagnation to restore recovery. Thus, the problem is embodied in the following questions:
- Did the change in the price index contribute to the stagnation of industrial production in Syria during the crisis phase (2011-2018)?
- Did the shortcomings of the supply and its limited ability affect the satisfaction of the consumption needs?

Research Importance:
The importance of the research lies in the seriousness of the phenomenon of industrial production that the Syrian economy suffers from in the form of structural imbalance, its causes and the factors affecting it, as they lead to a decline in purchasing power, a decline in the gross domestic product, and the discouragement of investment, therefore, presenting proposals derived from the local capabilities to control this phenomenon and restore economic activity flexibly is an urgent necessity.

Research Goals:
- Analyzing the reasons for the development of the industrial commodity price index
- Analysis of the factors affecting the investment climate disruptions in Syria at the level of stagnation and the general level of prices.
- Showing the extent to which, the Syrian economy was affected by the rise in prices and the decline in productivity on the total productive capacity
- Evaluating the state of stagnation and the level of recession in Syria by analyzing the relationship between productivity and the decline in purchasing power.

Research Hypothesis:
In order to analyze the research problem and try to answer the questions it raises; the research is based on studying the following hypotheses:
- The change in the price index leads to stagnation of industrial production in Syria during the study period 2011-2018.
- The decline in purchasing power leads to a slowdown in productivity growth of industrial products in Syria.

Research Methodology:
The researcher followed the deductive approach based on the transition from a general case based on the use of concepts and theoretical frameworks to analyze the phenomenon of stagnation and the factors influencing it, then applying it to a special case, which is the stagnation of industrial products in Syria, and followed the analytical descriptive approach by making use of the available statistical data and analyzing its development and the degree of its impact on Productivity, to reach results that help overcome obstacles and revitalize the overall economy.

Previous studies:
1- Samir Siham Daoud (2013). The impact of structural economic imbalances on inflation, a case study of the Iraqi economy, Journal of Economic and Administrative Sciences, Volume 19, Issue 70.
The researcher presented an attempt to describe the problem of inflation, how it arises in the Iraqi economy, and the role of structural imbalances in the rate of inflation, using the explanations of the economic theory of the problem of inflation.
The researcher concluded that there is a close relationship between the stagnation and distortion of the structure of production and productivity, and between inflation rates whose effects distort the proportion of the contribution of productive sectors and the unequal rate of exchange in foreign trade. The disruption of economic resources leads to an inflexible aggregate supply curve due to the inflexibility of the productive apparatus to respond to the increase in effective demand.
2- Abdul Karim, Samah (2015). Stagnant inflation in the Syrian economy, its causes and consequences - an analytical study, PhD thesis in economic sciences, University of Damascus.
The research presented an attempt to analyze the problem of stagflation in the Syrian economy during the period 1991-2013 and proposed appropriate solutions to it, by examining its causes and factors that create it, and the impact of structural economic imbalances on the phenomenon of stagflation. And with the help of modern econometric models, the research concluded that there is a long-term equilibrium relationship between the rate of stagnant inflation on the one hand, and each of the production costs, monetary policy indicators, and the foreign trade and investment gap using co-integration options.
3-Al-Rifai, Abdel-Hadi, Mohamed, & Sally. (2018). A study of the impact of inflation on the standard of living of the Syrian family during the period 2000-2010 Tishreen University Journal. Economic and Legal Sciences Series, Volume 38, Issue 6
The research deals with the study of the impact of the phenomenon of inflation on income, which reflects the standard of living of the family and the exchange rate of the Syrian pound in a descriptive and analytical manner during the period 2000-2010, by studying the change in the standard of living of the Syrian family as a result of inflation. The researcher concluded

that there is a strong direct relationship between inflation rates and income, and a weak direct relationship between inflation rates and the nominal exchange rate.

4. Judith, M. N., & Chijindu, E. H. (2016). Dynamics of inflation and manufacturing sector performance in Nigeria: Analysis of effect and causality. International Journal of Economics and Financial Issues, 6(4).

The researcher tested the relationship between inflation and the growth of the manufacturing sector in Nigeria using time series data from 1982 to 2014. The results of the base regression revealed that inflation and the interest rate have a negative and insignificant effect on the growth of the manufacturing sector, while the exchange rate affects positively and significantly the growth of the added value of the manufacturing sector. The researcher suggested the need to encourage the manufacturing sector by providing credit to manufacturers at a competitive price to ensure stimulating local production and increasing domestic and foreign demand for commodities, which can reduce inflation, in the long run.

5. Piper, D., Ferrari-Filho, F., & Lélis, M. T. (2020). The Relationship between Productivity and Inflation: An Empirical Analysis of the Brazilian Economy. Theoretical Economics Letters, 10 (3)

The research presented an empirical test using the structural autoregressive vector model (SVAR) for the period after December 2009 for the hypothesis that productivity expansion is the solution to inflation problems in the Brazilian economy. The study confirmed the existence of an inverse relationship between inflation and productivity. The producer price index for the manufacturing industry showed sensitivity to exchange rate changes and that its dynamic behavior showed an important element of inertia. Also, the behavior of aggregate demand did not constitute a significant determinant of the behavior of the index, in addition to that, the basic interest rate tends to exert an influence on the producer price index, opposite to the effect that the monetary authorities want.

Usually, after reviewing previous studies, we write a paragraph of 5-7 lines explaining what distinguishes our research from previous research

Results and Discussion:
Evolution of the industrial commodity price index:
The consumer price index is one of the important economic indicators. It reflects the evolution of the purchasing power of income and allows interpretation of changes in the cost of living within a period of time.

The Central Bureau of Statistics in Syria defines the consumer price index: it is the relative change in the amount paid to purchase the basket of consumption goods and services from month to month and from year to year.

It is a compound index that measures the amount of change in the prices paid by households within the economy on the consumer price basket. This basket includes a variety of consumer needs that are necessary for the family's living and spending on food, housing, transportation, clothing, health, education, furniture, industrial and non-industrial equipment, and services. It explains the change that occurs in the consumer, and how the rational consumer divides his spending on basic and industrial commodities and various services. Data issued by the Central Bureau of Statistics indicate that the price index of industrial goods in Syria has risen to 790 percentage points, according to purchasing power parity for the year 2010. The following table shows household spending on industrial equipment and supplies needed by households and the accompanying maintenance.

Table No. 1: Numbers of Consumer Price Index, Chapter Ten, Domestic Trade and Consumer Prices Base Year 2010

2018	2017	2016	2015	2014	2013	2012	2011	Base Weight	Year
790.1	782.8	662.9	448.8	324.2	264.1	145.4	106.7	100	All goods
982.2	988.7	820.3	489.9	346.7	261.66	142.1	103.7	40.5	Equipment and home maintenance
837.8	871.3	737.3	400.1	275.2	229.4	129.6	101.0	9.9	Furniture fittings, carpets and bed linen
1253.1	1346.8	1023.9	569.0	366.8	216.4	139.2	108.6	2.8	home textiles
937.4	937.5	659.4	478.2	316.5	206.9	131.6	102.4	7.4	household appliances
1101.4	1171.2	983.0	476.2	379.1	225.2	147.2	103.6	1.9	Table and household glassware
1023.4	997.7	880.6	532.0	390.6	311.6	153.0	105.0	18.5	Goods used in home maintenance

Source: Central Bureau of Statistics, Statistical Group

The above table shows the difference in the relative weight of household industrial purchases according to purchase priorities, where equipment and home maintenance work have the highest relative importance, 40.5%, while glassware has the least relative importance, 1.9% in the base year 2010. In the comparison year 2018, however, it is noted that household appliances have the lowest number Standard of 937.4, and home textiles have the highest record of 1253.1. The foregoing shows the difference in the level of spending among the industrial groups of households from one year to another, and this is explained by the adjustment of the purchasing power of the monetary unit to the components of the consumption basket (quantities of goods), as the index of commodity prices rose to 790.1%, while the index of household equipment rose to 982.2%. This data confirms the inflation of producer prices, as it reflects the background that caused the rise of the price, which is the rise in producer prices. Consumer price indices reflect the predictive content of producer prices, due to the dynamic flow and transfer of production costs to consumer prices. Bognanni's study shows that there are close and positive correlations between producers' manufacturing prices for producers and consumer price inflation. In order to study the correlation between producer price inflation and consumer price inflation in Syria, Table No. (2) shows the annual and compound inflation of the household industrial equipment price index.

Table No. 2: Annual and compound inflation of the commodity index and the household equipment price index

Compound Inflation of household equipment	Inflation of household equipment index	The household equipment index	All goods compound inflation	All goods inflation	Commodity index	Year
		40.5			100	2010
156.05%	156.05%	103.7	6.70%	6.70%	106.7	2011
87.31%	37.03%	142.1	20.58%	36.27%	145.4	2012
86.25%	84.14%	261.66	38.23%	81.64%	264.1	2013
71.05%	32.50%	346.7	34.18%	22.76%	324.2	2014
64.64%	41.30%	489.9	35.02%	38.43%	448.8	2015
65.10%	67.44%	820.3	37.06%	47.70%	662.9	2016
57.84%	20.53%	988.7	34.17%	18.09%	782.8	2017
48.97%	-0.66%	982.2	29.48%	0.93%	790.1	2018

Source: Researcher's calculation = (valuen-valuen-1) / valuen-1 annual inflation, = (End value / begin value)1/n -1 compound inflation

In order to be accurate in the estimate, the research resorted to estimating the compound inflation between the base year 2010 and the following comparison years, as the compound index measures the amount of change in prices paid by the consumer on the basket of goods, and by interpreting the rate of inflation depending on the relative contribution of the components of the consumer price basket between the base year 2010 and the comparison year 2018, it was found that all components of the basket contributed positively to the inflation rate. It is noted that prices rose in 2018 from their levels in 2010 by 49%, indicating a decline in the purchasing power. This is directly due to the deterioration of the exchange rate, the rise in the prices of oil derivatives, and the fixation of nominal wages, given that the differences between wages and expected inflation may affect the financial decisions of the family.

Factors affecting the stagnation of industrial products in Syria
1- Weak indicators of financial and monetary stability in the investment climate:
Macroeconomic policies focus on achieving sustainable economic growth, price stability, enhancing the purchasing power of money, stimulating demand and investment, and the change in fiscal policy and government spending affects aggregate demand and gross domestic product. Monetary policy turbulence, especially the fluctuation of exchange rates and inflation, negatively affects the macro economy.

Macroeconomic indicators are used to measure the quality of the economy's performance. Among the most important indicators of a healthy investment climate are: Balanced public budget - balanced balance of payments - low inflation rate - stable exchange rate - freedom of economic activity and transparency. The investment environment in the Syrian economy for the period 2011-2018 was characterized by the fact that it was a dangerous investment environment, and the values of macroeconomic stability indicators were low as a result of terrorist attacks, the destruction of infrastructure and productive assets, the intensification of unilateral economic measures, the smuggling of funds abroad, and the exit of many establishments from the production cycle. Fixed capital formation decreased from the gross domestic product in the Syrian economy, inflation rose, the exchange rate rose, and economic growth declined.

Table No. 3: Indicators of macroeconomic stability in Syria

Average exchange rate	The ratio of capital formation to GDP current prices	Compound inflation for commodities in the base year 2010	Annual commodity inflation	Compound GDP growth base year 2010	Constant annual GDP growth	Constant gross domestic product at market price	Year
46.5	20.46%					1,494,595	2010
48.16	21.63%	6.70%	6.70%	2.85%	2.85%	1,537,191	2011
64.66	12.79%	20.58%	36.27%	-12.96%	-26.34%	1,132,310	2012
108.78	14.46%	38.23%	81.64%	-17.66%	-26.30%	834,511	2013
154.13	8.24%	34.18%	22.76%	-15.88%	-10.31%	748,471	2014
237.03	8.44%	35.02%	38.43%	-13.48%	-3.19%	724,615	2015
460.27	9.07%	37.06%	47.70%	-12.22%	-5.63%	683,816	2016
494.02	6.27%	34.17%	18.09%	-10.66%	-0.73%	678,840	2017
438	7.35%	29.48%	0.93%	-9.22%	1.55%	689,392	2018

Source: Gross Domestic Product - Average Exchange Rate Central Bureau of Statistics, Statistical Group, Gross Domestic Product Growth, Inflation, and Capital Formation Ratio: A Researcher's Calculation.

The monetary policy in Syria during the crisis was not effective in intervening to face the negative effects, and it was unable to maintain the purchasing power and prevent the deterioration of the exchange rate, as the economic performance in general declined, a large part of the productive projects stopped, the budget was hit by a large deficit, and unemployment rates rose. The ratio of capital formation to GDP decreased from 20.46% in 2010 to 7.35% in 2018, due to the decline in economic activity as war operations and unilateral economic measures destroyed productive assets, and many industrial and craft projects and professions were closed, and this led to a decline in economic growth to the point Deep recession and great difficulties in transporting goods and personnel, constant GDP decline rate in any year 9.22% from 2010 levels.

These factors created a state of uncertainty regarding economic expectations, and negatively affected the supply and demand side of commodities alike, and created difficulty in explaining the forces of supply and demand in its various monetary, commodity and service forms, negatively affecting the decisions of investors, producers and consumers, and the cost of commodity supply increased, and purchases declined largely due to the high costs of production elements, especially the imported ones, causing high inflation and pressure on the exchange rate and the purchasing power. Exchange rate fluctuations and low purchasing power have become among the most important indicators of economic instability.

2- Real Income Decline

Inflation negatively affects financial development, modifies the effect of GDP on financial development, and redistributes incomes, as it leads to a decrease in real incomes, i.e. the loss of money to its real value and an increase in the cost of living. This would create a negative impact on the family's financial decisions, due to discouragement of the income's ability to cover spending. In Syria, real incomes (wages) decreased and were unable to cover inflation, and this affected the purchasing behavior of the family, due to the decline in income and productivity indicators and the rise in inflation, which shows that the

demand for money is greater than the money supply. This leads to the variation in inflation rates of the industrial commodity price index from one year to another, and this raises the state of uncertainty in consumer behavior and preference, due to the variation in national income growth on an annual basis from year to year. Table No. (4) shows the effect of inflation on the consumer's purchasing power of industrial goods in Syria.

Table 4: The effect of inflation on the consumer's purchasing power

Compound national income growth for the 2010 base year	Annual national income growth	Compound inflation index for commodities base year 2010	Annual record commodity inflation	Industrial commodity price index	Year
				100	2010
14.74%	14.74%	6.70%	6.70%	106.7	2011
5.53%	-2.94%	20.58%	36.27%	145.4	2012
2.65%	-2.89%	38.23%	81.64%	264.1	2013
8.56%	28.44%	34.18%	22.76%	324.2	2014
13.88%	37.90%	35.02%	38.43%	448.8	2015
17.15%	34.96%	37.06%	47.70%	662.9	2016
20.01%	38.71%	34.17%	18.09%	782.8	2017
18.90%	11.39%	29.48%	0.93%	790.1	2018

Source: Central Bureau of Statistics, inflation and growth: researcher's calculation
The above data shows the effect of inflation on the purchasing power of income. As it is noted that the commodity price index has risen, and this is evidence of a decline in the purchasing power of income, i.e. the amount of goods and services that individuals can secure with the income available to them. The national income grew between 2010 and 2018 by 18.9%, while Inflation rose during that period to 29.48%, leading to a decline in the purchasing power of income by 64%, according to purchasing power parity for the year 2010, and this explains the changes in the cost of living first and the volume of purchases on goods second. Family spending patterns have clearly declined, and families as a whole have allocated about 60% of their total expenditures for basic foodstuffs, as a result of the high prices of these materials and the rationing of spending on industrial goods. Therefore, the income must be increased by 10.58 times to be able to cover inflation and secure its needs due to the deterioration of the exchange rate, price inflation, the halt in growth, and the decline in production. Priority of consumers' preference (elasticity of substitution between products) plays an important role in determining the purchasing pattern and payment trends in return for the change in diversifying products in the consumer's spending shares, due to the subjection of consumption demand to income constraints and consumer sales prices.

Analysis of indicators of stagnation of industrial products in Syria:
1- The rate of implicit deflator of GDP:
The implicit deflator measures the rate of change in the prices of all goods and services included in the calculation of the gross domestic product. It is calculated by dividing the

(nominal) gross domestic product at current prices by the (real) gross domestic product at constant prices, as it differs between the values of output at constant prices and the values of output at current prices because the change in the value of output at constant prices is due to the change in the quantities of production only. But in the case of current prices, the differences are due, in addition to the growth of real production, to the increases that occurred in the prices themselves. Therefore, the effect of prices on the value of output at current prices must be excluded by using the implicit reducer.

$$\text{GDPdeflator} = \frac{\text{NominalGDP}}{\text{RealGDP}} \times 100$$

The nominal output represents the amount of cash that the society receives, while the real output represents the amount of goods and services that the society purchases during a given year. With the aim of removing the effect of the price, and correcting the value of money for all goods and services included in the calculation of the gross domestic product, if the percentage index exceeds 100%, this means that there is a rise in the general level of prices. Through the index of the implied index (the deflator), it is possible to infer the amount of excess money absorbed by the gross domestic product in the form of a rise in the general level of prices and lead to its inflation. This number is also called the deflator and is also called the GDP deflator.

Table 5: the GDP deflator.

implicit reducer	Gross domestic product at current market prices	Gross domestic product at market prices in 2000 prices	Year
189.65%	2,834,517	1,494,595	2010
211.60%	3,252,720	1,537,191	2011
267.14%	3,024,842	1,132,310	2012
352.01%	2,937,561	834,511	2013
482.59%	3,612,015	748,471	2014
653.13%	4,732,656	724,615	2015
894.54%	6,117,033	683,816	2016
1225.20%	8,317,173	678,840	2017
1337.48%	9,220,511	689,392	2018

Source: Central Bureau of Statistics, Statistical Group, implicit reducer, researcher's calculation

We note from the above table that the implicit deflator of GDP reached 189% in 2010, then it rose steadily to 1337% in 2018, reflecting the rise in current prices, due to the experiences of war and the unilateral measures imposed on the Syrian economy that disrupted the production cycle and created turmoil and distortion in the structure of investment activity and the real physical production sectors, as the elements of production (labor - capital - inventory - organization) are distorted in their productivity and do not currently operate in a correct investment climate, causing a decline in the gross domestic product at constant prices from 1494 billion pounds in 2010 to 689 billion pounds in 2018, and this is evidence On the decline in production, given that the gross domestic product summarizes the level of economic activity of the country. In the period between 2016-2018, the gross domestic product entered a stage of stability in production at the level of 689 billion Syrian pounds at constant prices On the other hand, the implied deflator increased more than 7 times, and therefore the economic activity did not

increase and did not create new job opportunities, nor was it able to increase production, and this is evidence that the Syrian economy entered the stage of inflationary stagnation, and this negatively affected the production and sales of industrial products.

2- Excess demand:

The inflationary gap reflects the excess demand and the inability of aggregate supply to cover aggregate demand. This embodies the interactive relationship between the production offered by producers and the corresponding level of aggregate expenditure. In the event of an imbalance between the ability of aggregate supply to cover and satisfy aggregate demand, a demand gap occurs. The demand gap is measured by the difference between aggregate demand and aggregate supply, where aggregate supply represents what leaks into income in the form of consumption, savings, and taxes, while aggregate demand is embodied in government spending, private spending, investment spending, and net dealings with the outside world. Thus, the demand gap is equal to income plus the difference between exports and imports minus total expenditure (consumption - investment - government expenditures). And as the economic literature confirms, in the case of full employment, production cannot be increased because all available resources are used, and therefore the increase in the value of output is nothing but a rise in the general level of prices and reflects the inflationary gap. The inflationary gap refers to the diminishing marginal efficiency of capital and labor when economic activity approaches the level of full employment so that every increase in aggregate demand is not matched by an increase in the volume of production leads to higher prices.

Table 6: Demand gap, current prices, million Syrian pounds.

excess demand	net trade balance	Ongoing investment	current family consumption	current government consumption	Available national income (aggregate supply(	GDP at current market price	Year
139,729	9,167	579,911	1,867,768	377,671	2,694,788	2,834,517	2010
160,639	-388,942	703,594	2,522,220	415,848	3,092,081	3,252,720	2011
23,678	-603,137	386,818	2,800,628	440,533	3,001,164	3,024,842	2012
23,189	-856,276	424,662	2,807,678	561,497	2,914,372	2,937,561	2013
-131,220	-1,453,217	297,496	4,058,916	708,819	3,743,235	3,612,015	2014
-429,109	-1,411,770	399,594	4,944,835	799,997	5,161,765	4,732,656	2015
-849,461	-2,215,189	554,723	6,752,344	1,025,154	6,966,494	6,117,033	2016
-1,345,708	-2,735,353	521,777	9,154,040	1,376,709	9,662,881	8,317,173	2017
-1,542,898	-1,995,191	677,598	9,008,707	1,529,397	10,763,409	9,220,511	2018

Source: Central Bureau of Statistics, Statistical Group.

It is noted from the table that the excess demand during the period from 2010 to 2013 takes positive values because the demand curve is higher than the supply curve, which is an indication of the superiority of aggregate demand over aggregate supply (inflationary gap). Then the demand curve enters a period of calm and stability between 2012 and 2013, where the curve of excess demand approaches the equilibrium level, but it soon declines sharply until it reaches deep levels of deflation in 2018. This is explained by the fact that selling prices are higher than equilibrium prices, due to the high costs of factors of production, especially imported ones, and thus the high prices of commodity supply, compared to nominal wage rates in the Syrian market, and therefore there is a surplus in stock over the level of equilibrium production, and this is explained by the presence of stagnation in demand, and the tendency of producers not to reduce the price in order to sell production and encourage sales, due to the prevailing state of uncertainty regarding profits, given that psychological factors play the largest role in the lack of Price elasticity of producer selling prices.

In 2018, the deflationary gap in Syria amounted to 1,542,898 million SP. The essence of this is due to the inflation of the money supply at current prices, the high cost of imports against the backdrop of unilateral measures, war conditions, import restrictions, and the freezing of cash balances abroad, which disrupted the production cycle and discouraged investment spending, as this investment spending reached the largest value of 677 billion SP in 2018, which does not constitute more than 7% of the GDP. (Ellahi, 2017) confirms that the rise in the prices of factors of production, especially imported ones, causes inflation and reduces the total supply. In Syria, there was no increase in the commodity supply, what is doubled is the mass of cash in circulation. The combination of these reasons created a clear gap between the availability of goods and services and the purchasing power available in the hands of consumers, and on the other hand, a state of monopoly emerged in the formation of prices, and raised the final selling price, in addition to high inflation rates that reduced the real value of the monetary unit and raised the cost of living, and this confirms the entry of The Syrian economy is in the phase of stagflation during the period 2014-2018.

3- Low level of productivity

Productivity relates to the efficient use of production inputs to effectively achieve the largest possible amount of output. The higher the productivity, the better the production elements (capital, labor, raw materials, and management) are utilized. The high cost of using production elements leads to a reduction in productivity, for example if the price of importing raw materials increases, the prices of goods and services in the local market also rise. Aggregate supply will decline because of the inverse relationship between inflation and productivity. The fluctuation of the exchange rate pushes economic activities towards speculation with capital and achieving profit margins away from the purchase of real productive assets, and negatively affects the producer price index. And in reducing the efficiency of using capital, as it is one of the determinants of the path of commodity supply prices, returns and profit rates on the use of capital.

In practice, inflation and economic growth are linked to an inverse relationship, as high inflation rates are usually accompanied by negative growth rates, and therefore local industries will find it difficult to operate optimally, and it is clear that productivity will begin to decline.

In Syria, productivity rates began to decline rapidly after 2011 as a result of terrorist attacks, robberies, looting, and systematic sabotage of various economic activities that plunged the Syrian economy into a state of stagnation and low productivity. A decline in production, output and sales. The following table shows the total production as well as the decline in productivity compared to the year 2010.

Table 7: Total production at producer constant prices and productivity.

Productivity decline compared to 2010	Total production at constant product price prices 2000 (million Syrian pounds)	
	2,529,715.00	2010
0.09%	2,531,868.00	2011
-11.47%	1,982,607.00	2012
-17.72%	1,409,141.23	2013
-13.70%	1,403,029.99	2014
-11.55%	1,369,358.59	2015
-10.34%	1,314,055.56	2016
-8.56%	1,351,728.38	2017
-7.18%	1,393,253.19	2018

Source: Central Bureau of Statistics, Statistical Group.

The table shows the deep direct impact of economic losses due to the war and the unilateral measures imposed on the Syrian economy on productivity, causing productivity to decline to 7.18% in 2018 from its levels in 2010.

The year 2013 was considered a disastrous year in terms of productivity decline, as it reached -17.72%, entering the Syrian economy into a major recession from which it has not been able to get out until today. This indicates the disruption of production capacity, the decline in investment financing, and the limitation of capital contribution to current expenditures and maintenance, away from real capital formation. The conditions of the war contributed to a significant increase in the cost of commodity supply due to the high cost of production elements, especially the imported ones, which led to a significant rise in the general level of prices, a decrease in productivity at constant prices, and the creation of an inflationary gap resulting from an increase in the quantity of demand over the amount of supply.

Analysis of the relationship between productivity and inflation
The decline in productivity pushes prices to rise and the purchasing power of income to decrease, due to the failure of the supply system to satisfy demand, and the rise in the prices of production inputs causes inflationary pressures, which are reflected in the final price of the commodity, and therefore the profit or loss of producers in the period of inflation depends on the nature of the change in each revenue of the sale of products in the market and the prices of the inputs that entered into the production process.

In Syria, production expenditures increased in relation to the purchasing power, as the purchasing power witnessed a noticeable decline, while production expenditures were inflated due to the rise in exchange rates and the rise in the prices of production inputs, the most important of which are oil derivatives. The following table shows the industrial

commodity price index, in addition to the calculation of the compounded inflation and the decline in productivity.

Table 8: Industrial commodity price index, compound inflation calculation, and productivity decline

Productivity decline compared to 2010	Total production at product price constant prices 2000 (million Syrian pounds)	Compound inflation index for commodities base year 2010	Industrial commodity price index	Year
	2,529,715.00		100	2010
%0.09	2,531,868.00	6.70%	106.7	2011
%11.47-	1,982,607.00	20.58%	145.4	2012
%17.72-	1,409,141.23	38.23%	264.1	2013
%13.70-	1,403,029.99	34.18%	324.2	2014
%11.55-	1,369,358.59	35.02%	448.8	2015
%10.34-	1,314,055.56	37.06%	662.9	2016
%8.56-	1,351,728.38	34.17%	782.8	2017
%7.18-	1,393,253.19	29.48%	790.1	2018

Source: Central Bureau of Statistics, Statistical Group, Compound Inflation and Productivity Decline, researcher's calculation

As the table above shows, the price index for industrial goods reached 790 percentage points in 2018, with a compound inflation rate of 29.48%, according to purchasing power parity for 2010. In contrast, productivity decreased, which indicates that the Syrian economy entered a stage of inflationary stagnation, as productivity decreased between 2010 and 2018 to 7.18%, and this shows the gap between income and prices, and the consequent widening of the recession gap, and the decline in sales.

The degree of effect of producers to inflation varies according to the cost of factor prices that they pay to complete the production of goods and services. Any commodity needs raw materials and intermediate materials for its production in order to become a final product offered in the market. However, the cost of production is not fixed even within the same sector, but rather varies according to operational capacity and production conditions. Moreover, some production inputs have high flexibility to change in price, and their prices rise at higher rates than the rest of the production inputs. Therefore, the change in the cost of production between one establishment and another, or between one production sector and another, is not necessarily the same.

All time series data show a more than fourfold decline in productivity, as in 2017 and 2018. The higher the inflation rates of production requirements, the higher the cost of final production, and in light of the income shortfall, sales will decrease, and this has a double effect on productivity in terms of income and profits, as the decline in real income plays a role in reducing consumption rates and changing demand from industrial goods to basic and necessary goods, and it also leads to Inflation plays a role in the erosion of profits at the purchasing power equality, and accordingly the need for financing to cover these costs increases, by paying more money than previously paid by inflation rates.

Results:

1. The price index of industrial goods increased during the period 2010-2018, reflecting the high levels of inflation in the consumer's budget, and the ability of demand to meet supply. This affected the stagnation of industrial products and the contraction of total productivity, as overall policies were unable to return total production to its level in 2010, and the quantities produced did not meet the demand due to the lack of purchasing power, due to the high rates of compound inflation 29.48% which the price index reached.

2. Household spending on industrial equipment varied according to spending priorities during the study period 2010-2018, as the index of industrial equipment rose to 982.2%, while the index of industrial goods reached 790%, to cover living expenses, considering the inflation growth rate (48.97%) greater than Income growth rates (18.9%) compared to 2010 rates. This sheds light on the size of the inflationary gap, and the difficulty of families' ability to secure industrial equipment in their spending basket.

3. The weakness of the flexibility of the display device, despite its shrinkage from satisfying demand, and its inability to adapt to the unilateral measures and conditions of war that the Syrian economy was subjected to during that stage, as the level of shrinkage amounted to 1542898 million Syrian pounds, in contrast, the implicit deflator of the GDP reached 1337.48 percent from its level in 2011.

4. The study proved a weak level of total productivity -7.18%, as the trade balance is losing, and the capital structure is low, and it reflects the weak efficiency of exploiting the elements of production in the overall investment environment that suffers from structural imbalances, especially with regard to the structure, indicators and potentials that have become an inevitable reality that is reflected in weak demand and productivity decline, which negatively affected the GDP contraction -9.22% during the studied period 2010-2018.

5. Syria was unable to provide sufficient support for the total production operations during the studied period, and therefore its investment model is still limited to redistributing the returns of the elements of production to the activities that contributed to its formation, in the form of wages, interest, rent and profit, and in stimulating demand, especially for industrial products, as the macro economy entered the stage of inflationary stagnation in light of the high level of inflation at an inflation rate of 48.97% for industrial goods and a contraction of -7.18%.

6. Efforts to revitalize demand and restore demand for its role did not improve in the Syrian economy, as the analysis showed a deflationary gap that reflects the failure of aggregate income to stimulate demand, and in light of the decline in national income compared to inflation rates, Syria was unable to restore previous productivity levels, and therefore efforts to stimulate demand still fails to play the developmental role that is required to get out of the state of recession.

Suggestions:

1. Implementing structural reforms on the aggregate supply and aggregate demand side, by seeking to rehabilitate and repair facilities, and providing subsidies that support the improvement of nominal incomes, in cash or in kind, with the aim of achieving relative stability in supply compared to demand.

2. Adopting demand-stimulating strategies to contain the deflationary gap, reduce commodity stocks, and improve productivity increase by providing subsidized commodities at social prices, especially to the poor segments, and this would support spending behavior in the consumer's budget indirectly.

3. Mobilizing local savings and rationalizing their use, placing strict restrictions on imports, and spreading savings awareness of its importance in stimulating investment, restoring production cycles, absorbing surplus cash, and directing it towards increasing capital formation in a way that ensures alleviating pressure on the money supply. This requires structural adjustment policies at the level of the Syrian crisis, able to get out of the bottom and stimulate domestic production.

4. Raising the levels of real wages in proportion to the high inflation rates of the price index, in order for the income to maintain its purchasing power necessary to stimulate demand.

5. Adopting pioneering industrial projects that help overcome the current situation and adapt to the war economy that Syria is witnessing, which would bring about a change in the structure and would be able to diversify production according to the available local capabilities, improve the product first, and achieve growth that would be reflected in the total income and seep into the aggregate demand.

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