Wage- Price Spiral In Inflation

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Abstract

An assessment of the dynamics of wage-price spiral inflation and its self-reinforcing nature has been discussed in this paper. It is a feedback mechanism, where wages and prices continually keep pushing each other upwards: wage earners seek higher wages to maintain their purchasing power amid growing

price levels, and in response price setters increase the price levels to keep up with the elevated costs. This recurring sequence further heightens the inflationary pressure, as the continuous adjustments create a perpetual loop of rising wages and prices.

This paper is also focused on exploring the relationship between wage increase and inflation in the Indian context. Through empirical evidence, this study analyses the observed inflation trends in India, seeking to understand the dynamics of the existing inflationary patterns and the impact caused by the pandemic, how it disrupted the supply chains, labour markets and consumer behaviour. Through a detailed investigation, it seeks to unveil the ways these changes have influenced and altered the relationship between wage increase and the price level, influencing the spiral.

This paper tries to critically analyse the interventions and reforms done by the government in the past to manage inflation and wage growth. An assessment is done of its effectiveness and applicability, pinpointing where improvements can be considered, the recommendations are put forward in the existing policies considering the changing dynamics and potential ways to resolve the spiral

Introduction

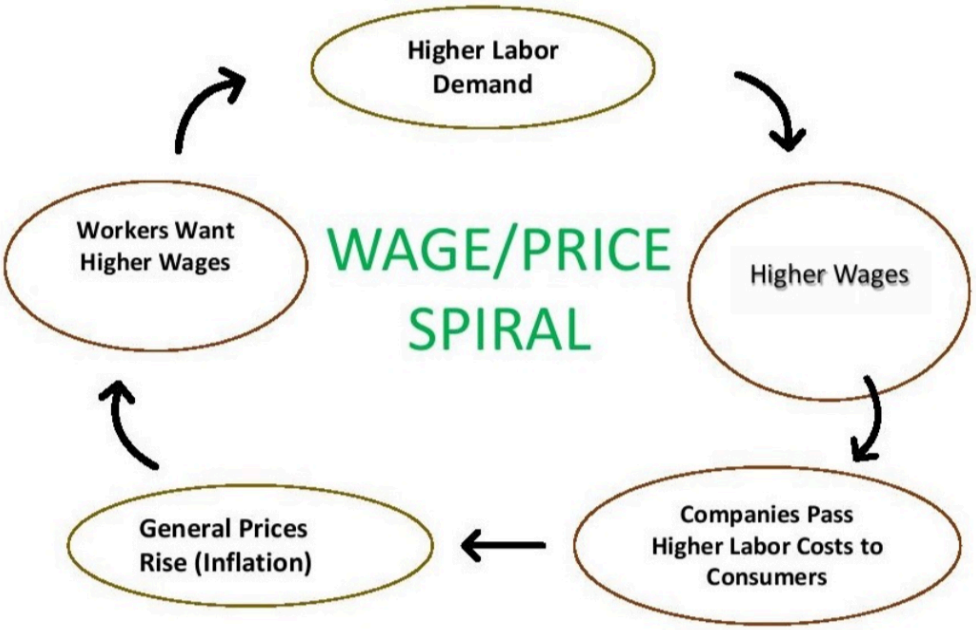
Wage push inflation is an overall rise in the cost of goods and services that results from a rise in wages. This triggers a wage-price spiral eventually as the cost of producing goods and services goes up as companies pay their employees more. Companies must charge more for their goods and services to maintain the same level of profitability to make up for the increase in cost [1]. This idea shows a relationship of causation and effect in which a change in one factor influences the other. Thus, creating a continuous cycle. As the demand for an increase in wages prevails by the workers, it leads to a rise in disposable income availing them of more purchasing power. Thereby, leading to a boost in demand for goods and services which puts pressure on businesses to produce more to meet the escalated consumer needs. The resultant escalation in demand allows businesses to raise their prices, which happens due to limited supply constraints in the short run.

They can do this as the consumers are willing to pay more due to their higher disposable income. Consequently, leading to an upsurge in inflationary pressure as the overall cost of goods and services in the economy rises. As prices go up, workers may find their current wages not stretching as much, prompting them to demand an increase to sustain their standard of living. Henceforth, businesses face higher production costs because of the increment in wages which they have to pay to accommodate the

[1] Wage Push Inflation: Definition, Causes, and Examples (investopedia.com)

heightened demand. This reciprocating behaviour where rising wages trigger higher prices, and higher prices, again lead to a growth in demand for higher wages, establishing a theoretical vortex or spiral. This spiral lingers on as each factor influences and reinforces the other.

To summarise, the wage-price spiral majorly accentuates the interwoven link of wages and prices in an economy. It clarifies how changes in one element like rising prices spark off a sequence of events like workers then demanding higher wages that, in turn, impact the other, starting a self-perpetuating loop with repercussions for inflationary trends.



Correlation Game

1. Wage Flexibility and Output

Suppose being employed as an individual with a salary which can be adjusted easily as per the situation prevailing in the flexible labour market which forms the primary base. There will tend to exist an association between wages and output demanded which will be positive. Businesses can raise the compensation of employees as they require more of them in case of an uptick in demand. This will act as an incentive encouraging them to work harder increasing the total volume of production.

2. Price Flexibility and Output

Now, let's think of the prices which are paid for purchasing commodities. In a laissez-faire economy where there is minimal government intervention, if prices of items can change rapidly adjusting to the unexpected transition in the demand and wages might not change as swiftly, then there will exist a negative correlation between the wages and the level of output. To explain simply, if the prices can move upwards or downwards in response to the market conditions, the compensation may not change as much as the expansion or contraction in demand.

3. Monopoly Power in Labour and Product Markets

a. If a company has a lot of dominating power in the job or product market or has monopoly power, it means it can set wages or prices.
b. Job Market- - During periods of expansion, companies have control in the job market leading to huge increments in their pay, whereas during contractions, relatively low decrease
c. Product Market- During expansions, companies might have the ability to raise the prices during times of expansion allowing them to generate higher profits. Conversely, during periods of contraction, they may not reduce it substantially leading to a potential negative impact on workers' wages.

4. Play of Dominance

If labour markets are seen to have greater control, there is a possibility that workers may see increased pay even in times of contraction. And if there is more control in the product market, workers are likely to see reduced compensation both during expansions and contractions.

Historical Evidence

Taking the case of the UK, efforts have been undertaken to understand and analyse the persistent challenge of inflation faced during the 1970s. This was further aggravated by a confluence of rising oil prices and wages, leading to a wage spiral.
The case of the UK by serving as a distinct example provides a clear overview of how these macroeconomic developments unfold, highlighting how adverse consequences can be developed.

Background

During this era, the UK witnessed CPI inflation which averaged 12 % on a calendar-year basis, reaching a peak of nearly 23 % in 1975. The levels hit during that period were not seen in any other post-war decade and found no historical equivalence in terms of persistence. Price data from the Bank of England dating back to the 13th century reveals that the inflation rate in the 1970s was higher than that of any other ten-year period in the last 800 years. Wages increased significantly for most jobs in the 1970s. Prices also rose, but people were still better off in 1979 than they were in 1970. The average weekly wage in 1970 was £18.37, in 1979 it was £68.92. The 1979 wage in 1970 money was £23.79. An increase of 30%.[2]

1. Trade Union Strength and Bargaining Power

Trade unions are companies which represent organisations of workers, advocating for his or her rights and negotiating with employers. In the 1970s and early nineteenth eighties, there were trade unions in the UK which had sizable collective bargaining power which provided them with the leverage to negotiate on behalf of a huge quantity of people to secure higher wages and running situations. The magnitude of this influence plays a role in deciding the compensation and wage effectively With strong collective bargaining ability, these unions may want to correctly negotiate for better compensations or wages for their members. If successful, this could cause a cascading effect leading to a growth in the overall wage levels across various industries.

2. Cost-Push Inflation From Rising Oil Prices

During the 1970-80 period, there was a giant external factor contributing to inflation, known as cost-push inflation. This befell as a result of a sharp increase in oil prices. The oil crisis of the 1970s, because of geopolitical occurrences, led to disruption in the balance of supply and demand which sent shockwaves globally. Like other economies, the UK also relied on oil and a sudden rise in its price led to further elevating the production costs. This cost push inflation, propelled by the geopolitical happening contributed to aggravating the economic challenges faced by the economy.

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[2] How much did people earn in the 1970s? (retrowow.co.uk)

3. Impact on Production Costs

Rising oil expenses affected the cost of production for many industries because of it being a very basic necessity, this escalation in prices translated to heightened prices in every sector. Virtually all sectors rely upon power, and a growth in oil prices paved the way for higher costs for transportation, manufacturing and other essential processes.

4. Unleashing of Wage- Price Spiral

The combination of strong trade unions pushing for better wages and the expanded production charges from rising set off a wage-price spiral. So, here's how it worked.

a. Trade unions negotiated better wages for workers
b. Businesses, dealing with increased labour costs and higher manufacturing prices due to costly oil, felt the pressure of increasing the charges of goods and services to hold their profit margins.
c. The higher expenses meant people needed more money to shop for the same things, leading to an accelerated need for wage hikes.

5. Stuck in a Loop and Inflationary Pressure

This wage-price spiral created a feedback loop and posed significant challenges for the UK economy. Trade unions succeeded in availing higher wages, causing firms to face the pressure of increased costs, thereby leaving them with no other option than increasing costs. This continued persistence of higher wages again brought increased costs, and subsequently led to demands for better wages. This loop lingered on, contributing to a sustained duration of inflationary stress inside the UK.

6. Policy Responses

To address these demanding situations, policymakers in the UK during that period ultimately implemented measures to decrease inflation, which involved tight monetary regulations and efforts to exert pressure to control wage growth. In short, the UK experienced a notable wage-price spiral during the 1970s and early 80s, driven using the collective bargaining strength of trade unions and cost-push inflation due to rising oil prices. These steps aimed at mitigating the adverse effects, this spiral contributed to an extended duration of inflationary stress and posed economic challenges during that period.

Wages and Inflation Dynamics

Wage growth is an essential driving factor of inflation because wages form a big percentage of a firm's costs. If the growth of wages exceeds the productivity growth and then firms further increase prices to hold margins and profitability, this will lead to higher inflation.

1. Worker's Compensation Strategies

In lieu, if inflation is already high for other reasons, then the relationships between wages and prices may be the mechanism by which high inflation prevails or persists, in view that workers often seek higher when inflation is rising and is predicted to remain high for a protracted period to compensate for declining purchasing power), which subsequently increases firm's costs.

2. Central Bank's Role in Inflation Control

In this world of monetary policy, the central bank always endeavours to achieve control over the inflation rate, to keep it within a specified range. When actions are implemented to decrease inflation, and future expectations are also aligned in the same direction, then it is an environment where the inflation rate is considered to remain constant. This stability leads to a scenario where both wages and inflation rates are expected in a synchronised manner.

The term 'output gap' refers to a condition where the economy can grow further without reaching its maximum potential. This gap is the difference between the present level of output and the maximum sustainable level, where underutilisation of resources (both labour and capital) is prevalent. In such a scenario, there is still a chance for expansion as the output level is still not being used to its full potential, allowing us to expand further without triggering any inflationary pressure, allowing the absorption of unused resources, and managing to optimise output while maintaining price stability.

3. Labour Market Dynamics and Inflation

If there is an upsurge in demand, businesses may get motivated to hire more workers to meet the unexpected demands. They would have to offer higher wages to entice and retain the workers, especially if there is already a limited pool present for skilled labourers. Subsequently, these higher wages would increase consumer spending as it adds up to their disposable income and if this demand for goods and services outpaces the capacity of the economy to supply, firms may raise prices more easily. This is also known as 'demand-pull inflation'. As wages increase, the operating costs of the firms also rise which contributes to the building up of inflationary pressure. The interaction between labour market conditions and wage growth is an influential factor in understanding how inflation can be fueled by using increased demand.

4. Inflation Models and Relationships

Economists often use standard inflation models to investigate the relationship between prices and wages. The markup model shows that prices are set based totally on a percentage increase in wages. As wages increase, firms may pass on the increased labour costs to consumers through higher prices.

The Phillips curve, then again, illustrates a trade between inflation and the unemployment rate or the output gap. It means that as unemployment decreases and the economy approaches full employment, inflation tends to rise.

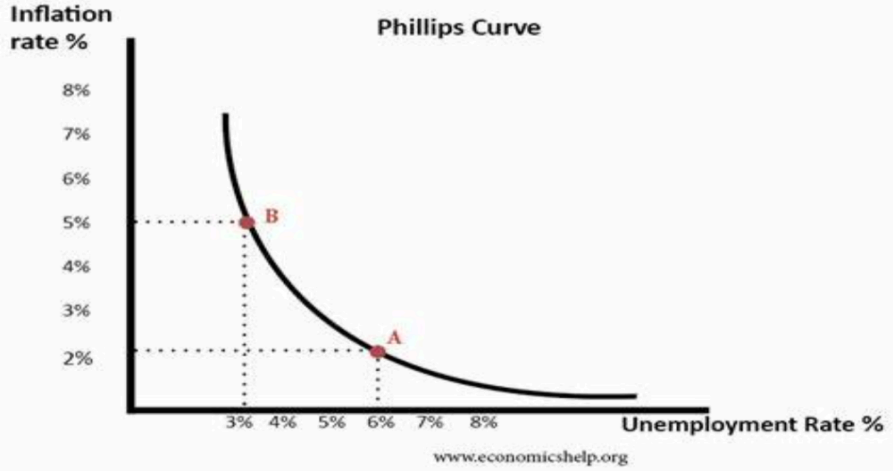
a. Phillips Curve

This concept involves an inverse relationship between unemployment and the inflation rate, saying that as the rate of unemployment increases, there is a simultaneous decrease in the rate of inflation, and vice versa. This concept was discovered in the 1960s by A.W. Phillips while analysing 100 years of wage-price data of UK workers, as the government adopted some strategies to aim for a particular inflation rate and adjust both monetary and fiscal policies accordingly. But, this trade-off between the two somehow broke in the 1970s leading to stagnation taking its place, featured by paused economic growth, high unemployment and high inflation which were a direct contradiction to the curve.

b. Stagflation

Stagflation occurs when an economy experiences stagnant economic growth, high unemployment and high price inflation. This scenario, of course, directly contradicts the theory behind the Phillips curve. The United States never experienced stagflation until the 1970s, when rising unemployment did not coincide with declining inflation. Between 1973 and 1975, the U.S. economy posted six consecutive quarters of declining GDP and at the same time tripled its inflation[3]. This led economists to reconsider the role of expectations in the relationship between these two. Expectations play a very pivotal role and in the long run too, this curve is based on the natural rate of unemployment. Monetary policy interventions which are aimed at lowering unemployment by increasing inflation can cause a short-run shift along this curve. However, over the long course of time, the curve can shift outward. This indicates the importance of considering the adaptive nature of expectations Though this has many limitations, it is still considered an essential parameter for decision-making because it acts as a general framework for thinking about the relationship between inflation and unemployment.

[3] The Phillips Curve Economic Theory Explained (investopedia.com)



5. Causality Tests and Feedback Loops

Causality tests, such as Granger causality, assist in verifying the usefulness of one variable to forecast another. Here, this test can be used to show how changes in inflation can influence wage growth and vice versa. This interconnectedness between inflation and wages engulfs the complex feedback loops within the economy. Policymakers and economists use these models to apprehend the elements driving inflation, paving the way for them to formulate suitable monetary and fiscal rules to hold price stability and economic growth.

6. Supply Side Factors and Cost-Push Inflation

In addition to the demand-pushed factors mentioned earlier, price inflation can also be influenced by the supply-side factors interrupting the positive correlation with wages. One example of this kind of scenario is known as 'cost-push inflation', where firms are constrained to experience increased costs for inputs other than wages. These higher non-labour costs are likely to have a cascading effect, having the potential to impact their profitability and diminish their capacity to afford higher wages. Responding to this financial pressure, firms may select to increase the prices as it would help in maintaining their profit margins despite the heightened non-labour input costs. During periods of cost-push inflation, firms may very often set a goal to restrain wage increases to offset the impact of rising input prices on their profitability. This strategy is anchored deep inside the necessity for firms to balance the equation between increasing costs and sustaining profit margins. Firms may also prefer prioritising their financial health over accommodating substantial wage hikes for employees.

The real effectiveness of this complex relationship depends on the extent of the pricing power that the firms possess. The potential to pass on these accelerated prices to consumers in the form of higher prices depends on the extent of competition within the industry. In a setting where there is a lack of direct competition, firms can exercise extra pricing power which can greatly help in maintaining their profit margins by adjusting prices upwards.

Reasons Behind a Wage-Price Spiral

1. Tight Labour Market

A tight domestic labour market refers to a scenario wherein the demand for labour exceeds the available supply, leading to lower unemployment rates and accelerated competition amongst employers for a skilled labour force. In this sort of situation, workers gain extra bargaining strength as employers discover it challenging to fill positions, making it less difficult for them to negotiate for higher wages.

During the aftermath of the global monetary disaster, many economies experienced a loss of salary growth. This was influenced by weakened demand, as businesses faced financial constraints and were hesitant to increase labour costs. Despite inflation rising due to factors like growing oil costs, the weakened demand for goods and services restrained employees' ability to barter better wages. A tight labour market usually presents employees with a greater advantage to make sure that their wages are at a level with inflation, creating a more favourable environment for wage growth.

2. The Stability of Bargaining Strength

Institutional elements can affect workers' bargaining power and the probability of 'real', for example, wage resistance'. For example, high rates of trade union membership or collective bargaining coverage will generally tend to strengthen employee's power.in addition to this, stricter job protection that limits the ability of firms to dismiss workers can provide workers more safety to push for higher wages, which can also increase the responsiveness of wage growth. Higher minimum wages and unemployment benefits also increase bargaining power and shift up the wage level.

Global elements are also seen as responsible for the balance of bargaining power, for the reason that the prospect of replacing domestically produced goods with imports can hold down wages in a tight domestic labour market. Also, in addition, increased availability of imported inputs reduces the impact of non-labour costs on domestic inflation pressures.

3. Stickiness of Wages

Imagine having a job, and the pay is decided by the head.

a. Stickiness and responsiveness- if the process of renegotiation happens once in a while, it makes wages 'sticky', meaning that they don't change quickly. The 'stickiness' term tells us the tendency of wages to fluctuate slowly or not at all changing as per the changes in the demand and supply forces If there is a change in the inflation rate, and the pay doesn't get renegotiated for a few years, it takes longer for the wages to catch up with the new prices

b. Supply shock and unwinding- If something happens that affects the cost of making products, and the compensation doesn't get readjusted quickly, by the time the pay is

renegotiated, the shock might be over. It may catch up eventually but the time of having lower purchasing power might not be made up afterward.

c. Wage price spiral and breaking out when the compensation adjusts slowly could create a situation in which expenses move up, but the pay takes up time to catch up. This delay can make it less difficult for the wage-price spiral. And once it starts, it can be challenging to break out of it. In economies, where these adjustments can be more easily or quickly, there's a very high probability that if there is a change in the cost of living, the pay might be adjusted sooner, reducing the risk of a wage-price spiral.

4. Renegotiation of Wages

a. Renegotiation frequency is the frequency by which your pay can be renegotiated or talked about. In some places, it happens frequently, like every 12 months. But in some, it might happen only every few years.

b. In some nations, many workers have their pay set via group agreements, known as collective bargaining agreements. These agreements are commonly renegotiated every few years, not every year.

c. In India, each state has its own minimum wage set, it is done to protect the workers against unreasonably low compensations. It is a joint act done by both the state and the central government. Under the Minimum Wages Act, of 1948, the committee and notification methods are used for fixing and timely revision of minimum wages.

5. Automatic Indexation of wages

It means that wages are automatically raised as prices increase to keep up with the increased wages. This type of dynamics is prevalent in those nations with a history of high inflation. It has decreased globally since the 1970s because of declining inflation costs. In some nations, this practice of indexing wages to inflation is still in practice. Such indexations can contribute to a wage-price spiral, where rising wages can lead to higher prices and vice-versa, potentially causing economic instability. The delay in indexation can create a lag between inflation and wage- adjustments.

6. Inflation Expectation

Expectations about future inflation play a very crucial role in the occurrence of these kinds of spirals. If both firms and workers anticipate that inflation will persist, they are likely to react by raising either wages or asking for a wage hike. These kinds of expectations are usually shaped with the aid of the nature of the inflationary shocks and an agent's prediction of the policy response to correct any inflation shot. In this era of inflation targeting, while short-run expectations may differ, medium time tends to withstand all the fluctuations and remain strong. This stability is a huge aspect in preventing the wage-price spiral.

Trend Seen In The Inflation Rate

1. **Vegetable Price Surge and Weather Impact (late 2019-2020)**

   India's inflation dynamics have been seen following a pattern different from that of global economies. In late 2019, the economy was made to see an increase because of adverse weather leading to supply-side inflation which majorly impacted vegetable prices. It surpassed the RBI's tolerance band (4 ± 2 %) in December and continued to remain above 6 % next year i.e. 2020 too. The fact of difference here is that in other countries, this acceleration in inflation was mostly observed post-mid-2021.

2. **Supply Shock Created by the Pandemic (Early 2020- November 2020)**

   In early March 2020, in the wake of the first wave of the pandemic in March 2020, strict lockdown measures were implemented. Fear-stricken labourers or working-class migrated back to their homes to escape the virus. Reasons which led to the inflation rate surpassing the upper tolerance band of 6 % till November 2020 were all the consequences in the form of supply shock, supply chain disruptions, and logistics bottlenecks of the aforementioned. International food prices, especially edible oils, spiked which added to the inflationary pressure.

3. **Relief For a Short Period and Resurgence (Early 2022)**

   At the beginning of 2022, the previously built inflationary pressure began to slow down as a result of activities like the normalisation of supply chains, increasing contact-intensive services and diminishing impact of the virus due to the widespread vaccination drive. However, it turned out to be short-lived due to the geopolitical pressure arising from the war-torn region of Ukraine in Feb 2022.

4. **Geopolitical Impact and Spillover Effects Observed (Feb 2022 Onward)**

   This geopolitical pressure arising from the conflict started impacting the prices of essential food items but this effect spilled over in various directions as demand picked up its momentum and consumer spending increased on recreational activities, hospitality etc., leading to firms regaining the advantage of setting prices and the costs started being reflected.

5. **Government's Way Of Tackling**

   Monetary and economic steps were put into effect to control its impact. Relaxation in monetary practices and seasonal softening in winter which refers to a reduction in the overall prices of food items due to favourable weather conditions contributed to a surge in shipping, decreasing inflation to 4.8 % from December 2020 to March 2021.

6. **Second Wave Shock and Supply Chain Disruption (2021- Feb 2022)**

   As the situation began rolling back to the pre-pandemic state, a devastating second wage led to the worsening of the domestic supply chains and logistic disruptions. To not get hit hard by it and to protect the profit margins, local providers hiked the prices contributing to inflationary pressures. Spillover effects from rising global commodity prices, especially petroleum and edible oil further led to

intensifying of the situation. As the restrictions eased after the first wave, a sudden surge in consumer spending was observed, and a shift in the preference of consumer spending from contact-intensive services to goods coincided with severe supply chain disruptions, and eventually led to container shortages which are very crucial for food transportation and a surge was observed in shipping costs worldwide. An increase in the prices of imported goods caused the building up of inflationary pressure and a continuous broadening of core inflation.

Fiscal Measures By The Government

1. Dependency and Tax Adjustments

India depends strongly on importing 85% of its crude oil leading to hiking of the prices of domestic fuel to international prices. Fuel accounts for 9% of the CPI, impacting both direct headline inflation and if not directly then influencing output prices through transportation costs. At the start of 2020, higher taxes were levied on domestic pump prices to finance pandemic-related expenses. But, in 2021, with a rise in global commodity prices, a decision was taken to lower the taxes on petrol and diesel by 15% and 32% to ease the burden. (Source- BIS)

2. Geopolitical Shock and Government's Response

Due to the ongoing war in Europe in Feb 2020, a sudden surge directly affected domestic headline inflation leading to second-round effects. The economy was made to face several hurdles during the Russia- Ukraine war in February 2022. The initial shocks came in the form of heightened fuel and food prices, and at the same time, events like sporadic domestic weather led to worsening the pressure even more by disrupting the agricultural output and supply chains. As the headline inflation crossed the upper tolerance band for three consecutive quarters, the authorities started working on bringing it back within the target range. To protect the economy from this geopolitical shock, the government again took some additional measures in May 2022, reducing excise duties on petroleum products by 28%. This brought about a cumulative excise duty reduction of 40% for petrol and 50% for diesel since 2021. At the same, domestic energy prices were frozen and a one-time grant to oil marketing firms to manage the impact. Import taxes on various essential commodities such as pulses, edible oils, vegetables and key industrial inputs were decreased.

3. Input Cost Management

These measures were taken to manage input costs for the produced output and to maintain stability in essential commodity prices. Increased outlays were planned in the direction of spending on meals and fertiliser subsidies, basically to control costs for production. Essential food items for poor and needy ones were also provided at subsidised rates.

4. Cumulative Excise Duty Reductions and Price Freeze

To increase domestic supply and stabilise prices, exporting of sugar and cereal was also suspended temporarily. The stocking limits on oils and oilseeds were extended to protect speculative activities and ensure enough supply in the domestic market. The analysis provides us with the insight that cumulative excise duty reductions and price freezes done earlier helped in lowering headline CPI inflation.

Monetary Measures

2020-2021

In the middle of the risks caused by the first wave, the MPC answered by decreasing the policy rate by 250 basis points from February 2019 to June 2020, with a good sized 115 bps cut in off-cycle meetings in March and May 2020. These measures combined with conventional and unconventional liquidity tools, aimed at stabilising financial markets, lowering interest rates and narrowing bond spreads. Despite supply disruptions, which caused the inflation rate to exceed the upper tolerance band from June to November 2020, it maintained an accommodative strategy to encourage sustainable growth and handle the repercussions faced.

2021-22

This year, the RBI focused on promoting and maintaining economic growth while at the same handling the impact caused by the COVID-19 pandemic. Confronting the challenge of a 6.6 % contraction in demand in the previous year and disturbances caused by the subsequent wages, led them to follow an accommodative approach. Ignoring the supply shocks caused by the food prices, supply chain disruptions and geopolitical factors, maintained the same repo rate throughout the year. Also, focused on maintaining surplus liquidity in alignment with its growth-focused strategy.

2022-23

Global challenges like high prices and volatility in the financial market influence domestic inflation. The Ukraine war increased the pressure on food and fuel prices leading to further intensifying the supply chain disruptions. To handle it, the policy focused on inflation containment and expectation anchoring. An increase of a cumulative 250 basis points was considered, withdrawing the accommodation. Excess liquidity aligned leading to elevated deposits and lending rates.

Changes in the Labour Market and Inflation Dynamics

Findings advocate that the unemployment rate has gone below its pre-pandemic level, but the labour participation rate is still recovering. New hiring in the organised sector has exceeded the pre-pandemic

levels, pointing to a resurgence in employment opportunities. Though the demand for employment at the government-guaranteed minimum wage has fallen since July 2022, but still above the pre-pandemic levels, indicating a slow recovery of employment in agriculture and related activities.

1. Organised Sector and Consumer Perspectives

Organised sectors including real estate, hospitality, chemicals, and biotech, have vacancies which are still above the pre-pandemic levels. Surveys conducted to get a better hold of the situation prevailing in the market, indicate that consumer's perspectives regarding the employment situation have improved but remain in the pessimistic zone. Expectations for the forthcoming time are expected to be optimistic but still lower than the prewar period. Enterprises operating in manufacturing, services and infra sectors are quite optimistic regarding the employment opportunities. Both nominal and real wages experienced a direct downfall during the first wave. However, the real wages have remained flat since then, presenting a downside to private consumption demand. (Source- BIS)

2. Analysis of Wage-Price Dynamics and Phillips Curve

Analysing the findings from the vector error correction model in graphs shows us the presence of unidirectional long-run causality from the per-employee staff costs to urban consumer prices in the organised corporate sector. The long-run coefficient is below unity, indicating no presence of a wage-price spiral (A). Also, there exists a bi-directional convergence between rural wage growth rate and rural consumer price inflation (A). Quantitative estimates also present that changes in rural prices affect the prices. There has been recorded an increase in the impact of household wage income growth on inflation, still needs to be more sufficient to trigger the wage-price spiral.

Manufacturing:

$$\Delta cpi_t = -0.05^{**}(cpi_t - 0.75^{***} wage_t - 2.03) + 0.28^{*}\,\Delta cpi_{t-1} - 0.07^{***}\,\Delta wage_{t-1} + 0.01$$

$$\Delta wage_t = 0.17(cpi_t - 0.75^{***} wage_t - 2.03) + 0.52\Delta cpi_{t-1} - 0.22\Delta wage_{t-1} + 0.01$$

Services:

$$\Delta cpi_t = -0.08^{***}(cpi_t - 0.49^{***} cpi_t - 3.06) + 0.08\Delta cpi_{t-1} - 0.14\Delta cpi_{t-2} - 0.06^{**}\Delta wage_{t-1} + 0.02\Delta wage_{t-2} + 0.02$$

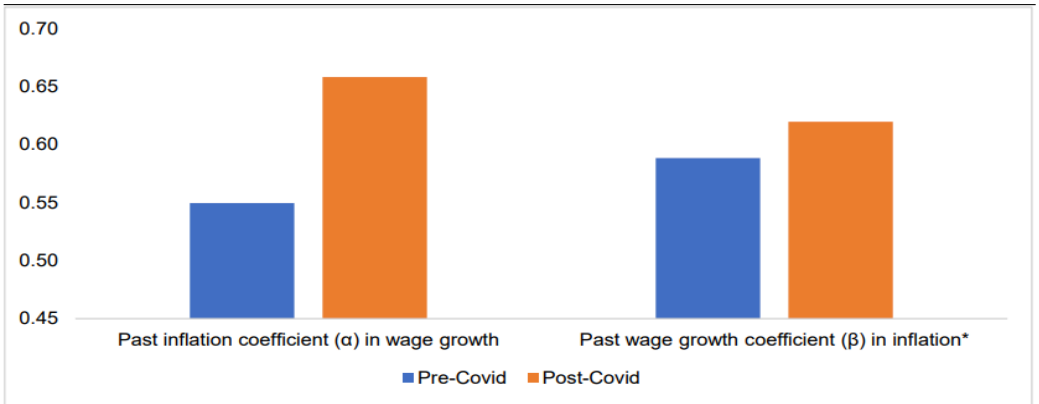
$$\Delta wage_t = 0.02(cpi_t - 0.49^{***} wage_t - 3.06) + 0.30\Delta cpi_{t-1} - 1.62^{*}\Delta cpi_{t-2} + 0.04\Delta wage_{t-1} + 0.38^{***}\Delta wage_{t-2} + 0.03]$$

$$\Delta w = -0.1^{***}(w_t - 0.97^{***} p_t - 0.44) + 0.21^{*}\,\Delta w_{t-1} - 1.00$$

$$\Delta p_t = -0.06^{**}(w_t - 0.97^{***} p_t - 0.44) + 2.23$$

*, **, ***, refers to significance at 10 per cent, 5 per cent, 1 per cent levels, respectively.

(A)



Note: Estimations are based on following two equations:

〖inflation〗_(t+6)=μ+α〖wage growth〗_t+γ〖unemployment gap〗_

〖wage growth〗_(t+6)=ω+β〖inflation〗_t+φ〖unemployment gap〗_t

*: Statistically not significant at 10 per cent level.

Source: RBI Staff estimates based CMIE Consumer Pyramid Data.t

Graph 1- Wage- Price Relationship

Sectoral Wage Dynamics

In organised manufacturing, it is hardly seen that household inflation expectations are driving higher wages, meaning a decline in labour bargaining. The main reasons behind this are globalisation, inexpensive imports, automation, employer monopsony power from production concentration in big firms and weakened power of unions. Whereas in the service sector, there have been observed indicators pointing towards the possibility that inflation expectations are influencing wage pressures. (Pattanaik et al (2020))

Okun's Law

Okun's law is an economic concept which involves a relationship between the rate of unemployment and the growth rate of output. It tells us that there exists an inverse relation between changes in the rate of unemployment and the growth rate of output. It says that the difference between the actual rate of output and the natural rate of output is tied closely to changes in the unemployment rate. To understand more clearly, for every 1 % increase in the output gap, the unemployment rate is expected to decrease by a particular %. There is no one-to-one relationship existing between employment and output rate and it can change due to various other dynamics like labour force productivity or technological advancements etc.

Application of Okun's Law and Phillips Curve

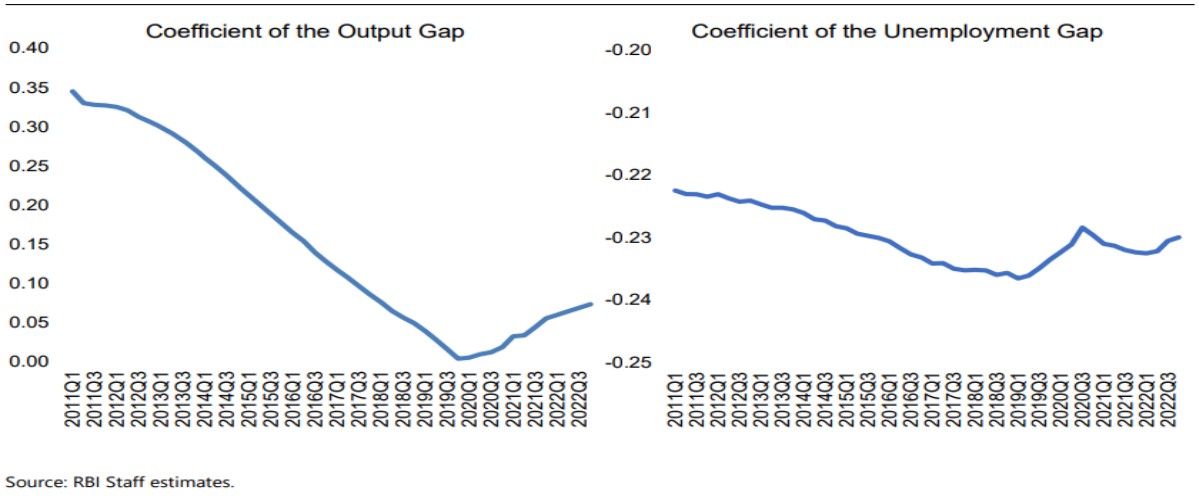
Both the Phillips Curve and Okun's Law seek to establish a relationship between unemployment and another economic factor. For the Phillips Curve, that factor is inflation, for Okun's Law, that factor is productivity (GDP). The Phillips Curve states that there is an inverse relationship between

unemployment and inflation whereas Okun's Law states there is an inverse relationship between unemployment and GDP.[4]

The Analysis

Patra et al (2021) found that the slope of the Phillips curve in India flattened from 2011 to the first half of 2020 From the second half of 2020, it has started steepening. The responsiveness of inflation to the output gap rises when the gap is positive.

The relationship between unemployment and output - a 1% increase in unemployment will usually be associated with a 2% drop in GDP in India. (Source- BIS)



Time-Varying Slope of the Phillips Curve

Graph-2

(B)

Cyclical influences in the labour market such as slack or tightness, are assessed by the unemployment gap. On using the unemployment gap in place of marginal cost in the Phillips curve framework, to understand the trade-off between inflation and unemployment and also to forecast the possibility of inflation, the Phillips curve is seen to be steeper (coefficient is 0.2) in comparison to when output gap (coefficient is 0.07) is used (B). It is justifying Okun's law (Graph-2). A unit increase in the unemployment gap lowers the inflation rate by around 20 basis points.

[4] Okun's Law: Economic Growth and Unemployment (investopedia.com)

It was noticed that during the pandemic in Q3 2020, the unemployment gap reached 3% from almost zero (last quarter of 2019), which can be due to the withdrawal of people from employment to keep away from contamination. However, it turned negative since Q2 2021, as the labour force or the people in search of work started returning to their workplaces and services requiring contact experienced a rebound, signifying a tightening in the labour market.

Steps Taken and Recommendations

1. India is seen to face a significant storage deficit, with food grain production at 311 MMT and storage capacity at 145 MMT, spotlighting a difference of 166 MMT, wherein, other nations have been observed possessing a surplus storage capacity of 131%. Attempting to improve the situation, the government approved a visionary ₹1.25 lakh crore project on 31st May 2023 to establish the world's largest grain storage scheme within the cooperative sector. This scheme aims to reach a target of 700 lakh tonnes over five years, highlighting seamless integration with Primary Agricultural Credit Societies (PACS). It aims to increase efficiency, decentralise storage and reduce post-harvest losses, thus marking a significant step towards enhancing food security and meeting demand, especially during times of inflationary pressure. The inter-ministerial committee is responsible for coordinating the implementation and working with key ministries.

   Recommendation-

   <u>Operational Efficiency and Management-</u>

   To manage the challenge of managing thousands of decentralised storage facilities at the PACS level, priority should be given to operational efficiency and management. It might be challenging in remote areas with limited resources and skills. This can be initiated by establishing capacity-building programs for providing PACS personnel with needed skills for effective facility management. Exploration of Public-Private Partnerships (PPPs) can also be considered an option to utilise the proficiency of the private sector in the operation and maintenance of these facilities.

2. Consumer centres in India are primarily focussed on basic rights and grievance settlement leading to a lack of widespread presence and limited reach for providing information on sustainable consumption and how an individual's market decisions have a direct or indirect impact on influencing the dynamics.

Recommendation

Initiatives like Consumer Education Centres

The government should try launching comprehensive consumer education centres to enhance awareness about sustainable consumption. Learning from the models of other developed nations like Verbraucherzentrale Bundesverband of the Netherlands which offers online resources and educational programs particularly focussed on sustainability. India can adopt a similar approach by leveraging existing infrastructure by partnering with educational institutions, NGOs and consumer protection agencies which will help in expanding the reach and efficient utilisation of available resources. It's essential to tailor educational programs to meet the specific needs of the market.

3. All government employees and pensioners receive dearness allowance (DA) and dearness relief, which are components of their salary aimed at alleviating the impact of inflation. These allowances are periodically adjusted to revise the effective salary of government employees. Currently, central government employees receive dearness allowance of 46%, while pensioners receive dearness relief (DR) of the same percentage. The most recent DA hike was announced by the central government on October 2023, and it became effective from July 1, 2023. As of now, it is expected that both the dearness allowance (DA) and dearness relief (DR) for central government employees and pensioners will likely be increased by 4%. This change is expected to take effect from January 1, 2024[5]

   Recommendation

   The US stresses performance-based pay structures for government employees, linking salary increases to performance and productivity gains, which can help reduce automatic wage adjustments that might not be tied to productivity improvements. A similar hybrid wage model can be implemented for government employees in India, combining a base salary with performance-based incentives, linking wages to productivity gains and reducing inflationary pressure.

4. The recent farmer's protest had 12 demands in total, with two having significant economic implications. One of them is legalising and increasing MSP for 23 crops. This increase in MSP can lead to impacting prices of commodities like soybean and maize, causing high inflation. As it is known that MSPs focus on impacting food crops, an increase can lead to higher prices for

[5] 7th Pay Commission DA hike: Central govt employees & pensioners eye 4% increase; check salary calculation, likely date and more | India Business News - Times of India (indiatimes.com)

these essentials leading to high inflation. These higher food prices can further lead to increasing prices of non-food prices as well, as firms pass these upsurge in costs to customers

Recommendation

Tailoring of MSP based on the production cost structure of different crops can be considered as not all crops require the same hike and periodic reassessment and adjustment is necessary instead of fixing up a definite MSP every year

Expectations for 2024

Though there are prevailing weaknesses in global trade, still some signs of growth are expected and trade is predicted to grow in 2024. Inflation is expected to decline slowly over the coming years and gradually converge to 4 % over the medium run. Based on the present evidence and records, it is expected that the unpredictable prospects of food inflation will shape the path of inflation due to adverse weather conditions. The authorities are staying vigilant as geopolitical tensions are surging, which can cause disruptions in supply chains and price volatility.

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