Managing the Three Posts of the Economy for Durable Development

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Abstract

The highest unemployment rate in the United States (US), 24.9%, was reported during the great depression from August 1929 to June 1938, and it remained above 10% until 1941. The US unemployment rate reached another high of 9.8% in 2009. Some market watchers predict it will occur again in the next two years. The economy's slow growth causes higher rates of unemployment with declining gross domestic product (GDP). Fewer jobs mean less income for US citizens, and less money available to spend leads to less consumption. As a result, GDP begins to decline. As GDP declines, businesses have fewer funds leading to a reduction of payroll and reducing personnel to reduce cost generated by salaries and wages. This leads to the belief that any of these two items are correlated. That is to say, that they vary together as the economy grows, providing a linear model for the quantities. The distribution of the differences between unemployment (UNMP), inflation (INF), and GDP, considering the quantities, UNMP - INF is right skewed and that of INF - GDP exhibits symmetry, while they both are unimodal. Using the ARIMA (2, 1, 0) Model we forecast GDP growth for the year 2018 and a few more years after that. As of now, it appears that the GDP estimate obtained for the year 2018 fits just about right. Businesses find themselves in the apathy of hiring personnel or waiting until the company is on a stable footing concerning the economic situation.
 Keywords: Inflation, GDP, Unemployment, Interest, Economic Growth, Global Crises, Phillips Curve

Introduction

This paper attempts to investigate the relationships between among GDP, unemployment, and inflation. The data has shown that the economic slowdown will reduce GDP, increase unemployment rate, and upsurge the conditions for possible inflation. A reasonable balance must be maintained between the three in order to keep the economy thriving and sustained. Catao and Terrones (2003) described the inflation as the continuous rise in the prices of goods and services with the passage of time and declination in the monetary value of currency.

In the eyes of today's economic outlook, it is shown that every country has contributed to global financial crises. Some countries have impacted more than others, thus enabling economic planners and forecasters to implement what has been learned from past financial crises.
It is with a more watchful eye on the market features, while implementing the right strategies, that all economic turbulences in the face of possible economic downturns is sustainable. They are depending on remaining or increasing their GDP, unemployment rate or inflation. In the future, the market factors will naturally face financial misfortune again and again. Real GDP, real GDP per capita,

unemployment rate and inflation rate can all play an important role in this progression to avoid a crisis whether it is big or small. In the study of Romania"s economy during the period of disinflation from 2014 to 2016, it was discovered that their national GDP and the national rate of inflation is strongly correlated. This has an inverse influence on the latter (Anghel, Lilea, and Mirea, 2017).

Background and Related Economic Risks

The US suffered a recession in 2007 to 2009. Its consequences continued to raise problems in the economy for much longer in a larger scale. The recovery of the nation depended in a patchy way to overcome these scenarios. The US economy left with debts, loss of homes, and loss of retirement funds and appalling rates of approximately 13.9%Americans unemployed. Not only was the USleft with a crisis, but also a desire to overcome and prevent further related perils. It is known as the most significant recession in over 40 years before the great depression. This recession made dreadful changes to the GDP, inflation, and unemployment rates of the country. A proper balance in this three elements will make the economy thrive and secure a sustainable growth of the US. A well-balanced economy will prevent the US from another recession and to succeed as aglobal economic powerhouse.

The GDP is one of the most important indications of the national economic growth. It is used by the government to know how the US economy is developing and to be able to take actions regarding budget planning and structures. Wall Street also bases themselves in the GDP; this one gives them an overview of how the economy is progressing. As such, the business community frequently uses the GDP as a way of forecasting, employment, productions, and investments (Konchitchki and Patatoukas, 2013). Additionally, as GDP declines, businesses have fewer funds available therefore leading to a deduction of payroll and reducing personnel to reduce cost generated by salaries and wages. Corporations find themselves hesitant about hiring personnel or waiting until the company is on a stable economy footing. When the unemployment rate is too high, the government opts to use a monetary fund to counteract the possible damages to the economy. If unemployment persists, the US Congress gets involved with the proper fiscal policies, and it can even create jobs, and give out benefits to those in need (Amadeo, 2018). Unemployment has fallen further in the US over the last six years than most economists predicted or otherwise. As the unemployment rate fell, Inflation increased. The main reason inflation has not been present in all goods and services is because they are continually improving the measurement of consumer price index. This tends eventually to eliminate the inflation. Although the economy in the US may be steady, stability cannot continue forever. Much of the US stability is because the US has a relatively low minimum wage, which allows higher employment by businesses, companies, and industries to remain. The percentage gap between the actual GDP and potential GDP is proportional to the difference between the current unemployment rate, and some believed, the "normal" unemployment rate (Solow, 2000).

Unemployment measured as a percentage. Statistically, unemploymentis a residual phenomenon. It is a reflection of the number of persons who are misemployed and remain without work over a period. Service employment usually is the one that suffers the less struggle of higher rates of unemployment, because there is always a demand for services. Change in trade employment is another type of employment that is estimated secured. Other types of industries such as agricultural and manufacturing employment have shown no significant change over the past few years (Galenson and Zellner, 1957). Unemployment may be computed in two different ways; oneis by the direct enumeration of the unemployed; or by deducting the total of those actually employed from the total available for work. Most commonly used is the direct enumeration in the US (Lebergott, Pearlman, Cooper, and Wool, 1948). Every time the US enters into recession, thesis known by using

GDP by the US Bureau of Economic Analysis (BEA). There have been several recessions in the US. Wars, oil prices, and unemployment were the primary causes that affected the GDP. Several steps have been taken when the economy is presented with a recession. The Federal government has also been involved in creating the same recessions. In 1981, a recession was created by raising interest rates to combat inflation. There have been times that the economy had to face a negative GDP. In 2007, with the great recession, the country had to face problems in the global banking sector with credit crisis. The BEA revises the new GDP in June of each year (Amadeo, 2018).

The GDP growth rate by year is the percent change in the gross domestic product from one year to the next one; the GDP is the best indicator of how the economy is progressing over time.

The GDP should also be compared to the unemployment rate by year and to that of inflation by year. This tells us where the economy of the country stands. Negative growth indicates a recession followed by high unemployment. Faster growth does not indicate a good economy and the growth must be sustainable. Economists indicate that an ideal GDP growth rate is the range of 2-3% to maintain a natural rate of unemployment (Amadeo, 2018).

Economic Factors and Uncertainties

Business and economic factors and uncertainties, and many other factors could cause risks primarily in the currency fluctuations and global economic climate. Unemployment is always one of the most economic priorities discussed due to the magnitude of the issue. This unemployment problem keeps changing over time. There has to be some sort of unemployment rate to maintain a healthy economy, but it has become another issue to decide what percentage of unemployment is "purely cyclical."Today,the fixing of unemployment rate must take into consideration several factors. How long can we push the unemployment rate will depend on how well we can control inflation without resorting to market performances and how successfully we can cope with unemployment and reduce unemployment disparities among the different groups in the labor force (Perry, Hall, Holt, and Kaitz, 1972).Unmistakably, individual countries" inability to control internal debt, weak currency market, and meagre performance of market parameters all have contributed to the current financial crises around the world (Goonatilake, Bachnak, and Acosta, 2012). However, the impact of globalization on the US economy stays to be one of the dominant economic topics debated in favor and against the economic development in the past decade (Dwight, 2008). The extent of what has transpired on currency and stock markets effect the economy and vice versa, thus providing a higher volatility of stock transactions for stocks that are being sold and bought on a daily basis. Although the process of buying and selling stocks is direct, generating steady profits is a lofty challenge for active traders.

Unemployment occurs when a worker departs from a job and spends some time finding a new job. The reasons why this person is unemployed are irrelevant in this definition. Unemployment varies positively with the separation rate and negatively with the job finding rate. Unemployment during a recession is high because jobs are hard to find. More job seeker has been dumped into the labor market. During a recession, the economy suffers high unemployment for extended periods. The jobs that change less during recessions are the government, education and health services and finance. The labor market is the place to look for an understanding in depth and persistence of recessions. This view will help to understand the issue (Hall, 2005). High unemployment rates create problems that range from individual economic hardship to a strain on the social safety net. When the economic growth is low, unemployment increases in most of the states in the nation. Low-interest rates are likely to spur additional employments, but they also create the risk of inflation. Higher levels of unemployment hurt the working class more because the upper classes are more likely to find a job

due to qualifications. Lower class individuals lack the qualifications to find employment easily and lack the financial resources to cushion themselves for unemployment. Government is willing to risk the creation of higher inflation to create additional employment. The creation of employment without having the sufficient funds to keep a stable economy will only increase the inflation rates (Kelly and Witko, 2014).

It is clear that although the unemployment rate may seem to only change so little in the past few years, the problem of unemployment in the United States is getting worse and worse. If unemployment fluctuates around the natural rate, we know that this fluctuation is critical. If this natural rate changes by increasing or decreasing it, is because there is some kind of structural change in the economy of the country. It is obvious that the natural rate itself has risen. To have a healthy economy, a number of individuals are going to suffer so that the economy as a whole can prosper. It is roughly estimated that two million people each year will suffer difficulty in finding a job, but this is to maintain a stable economy, so we don"t suffer further inflation problems (Baily, Burtless, Lovell, Lovell, and Semerad, 1983). An epidemic for the United States, unemployment is threatening the government and tearing societies apart. It is not only an unemployment crisis but rather a crisis of employment. Unemployment in the US is higher among the working class. The United States has a great wage flexibility, but the US is still losing low waged employments (Aaron, 1994). The GDP per capita can be brokendown into two principal objectives: labor hours per capita and output per worker-hour. If labor hours per capita start to decline, output per worker hours must rise to keep the GDP from shrinking. The only way growth can occur is if the rise in labor productivity outpaces the fall in labor hours.

Since the year 2000, labor hours have been declining. If labor hours keep declining, we will reach eventually the point called "peak GDP." When the income rises, people generally tend to invest in leisure; people want to buy more leisure as their wages rise. However, leisure goes up with rising wages as the opportunity cost of extra leisure is now higher than before (Lindsey, 2016).

Inflation is a highly complex phenomenon. Competition in the market will tend to risethe monetary value of wages in the outlook to increase labor productivity by about two percent in a year in the US. Because prices tend to rely closer to unit labor cost, there is a relation that links price inflation to the unemployment rate. Prices tend to remain stable even when wages are rising, but if the rate of increase in wages is bigger than the productivity, prices more than likely will move up. Whethera high level of inflation could be avoided, it is only at the cost of the higher level of unemployment (Smaistrla and Throop, 1980). The way inflation affects the labor market remains an open question. Usually, when inflation increases, a given amount of income at a specific periods makes it possible to consume lower amounts of goods duringthe period. Through this inflation-tax system, the returns on the economy are reduced relative to search cost. Therefore, industries have fewer jobs available as the unemployment increases. Berentsen, Rocheteau, and Shi (2007) showed that the trend in the unemployment rate is positively correlated with inflation or the interest rates (Lehmann, 2012 and Berentsen, Rocheteau, and Shi, 2007).

If the higher rates of price inflation can be tolerated, low levels of unemployment can be enjoyed. On the other hand, if the higher levels of unemployment can be tolerated, low rates of inflation can be enjoyed. It has been mathematically shown that by keeping a low inflation rate, a certain amount of higher employment must be maintained. A higher rate in increasing wages will quickly translate into a higher rate of increasing prices. This higher rate of inflation will then become the new standard. The level of unemployment must govern the rate at which the inflation rate is either increasing or decreasing rather than the inflation rate itself (Treynor, 1975). The relationship known as the Phillips curve as provided in Figure 1, states that there is a functional relationship

between the rate of inflation and the level of unemployment. The Phillips Curve and the natural unemployment rate are somewhat related. If the expected rate of inflation is well approximated by the last period inflation, then we finally have $\pi_t - \pi_{t-1} =$

$-\alpha(u_t - u_n)$, where π_t is the inflation at time t and π_{t-1} is the inflation at the end of the last period prior to time t. This equation strictly states that the change in inflation depends on the difference between the actual and the natural rate of unemployment, $(u_t - u_n)$. When u_t is either higher (or lower) than u_n, inflation either decreases (or increases), respectively. And, in fact, u_n is the necessary unemployment needed in order to keep inflation constant. This constant unemployment rate is called nonaccelerating inflation rate of unemployment (NAIRU) (Meyler, 1999).
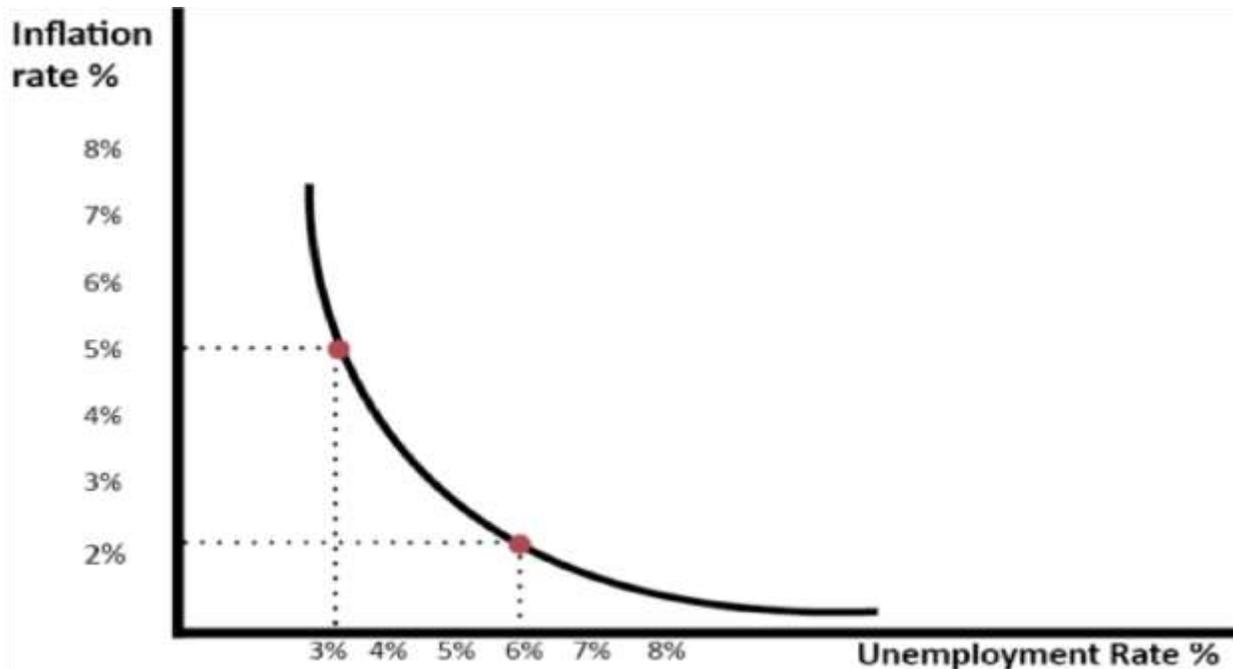
Figure 1. The Phillips Curve Estimates an Inverse Association between Inflation and Unemployment Source: https://www.economicshelp.org

In the simplest terms, it implies that full employment causes inflation. Thus, it also arises a significant economic difficulty, price stability, and the low unemployment. These are stemming from the current predicaments of the US economic policy. The conventional view of the correlation between unemployment and inflation is based on the fact that the wage is set by supply and demand in a marketplace, whereas the inflationist generated when the demand exceeds the supply (Piore, 1978).

Mathematics of GDP

The GDP is calculated using the aggregate expenditure formula as described by the equation, GDP = C + G + I + NX, where C = all private consumptions, or consumer spending in the economy as a whole, G = the sum of all government spending, I = the sum of all the investment, including businesses capital expenditures and NX = the total net exports, calculated as NX = all values of exports – all values of imports. The GDP is calculated quarterly whereas the unemployment rates are calculated monthly and invariable, some corrections are expected for the previous monthly rates as we often see if more data become available (Rokicka, 2013). Inflation is affected by both unemployment and money growth. Inflation responds better to the monetary stimulus in order to reduce unemployment faster

than the response implies by pure unemployment –inflation models, but it also reacts slower than the reaction implied by pure money growth-inflation models. Once money growth is considered, the level of unemployment does not affect the rate of inflation directly (Benderly and Zwick, 1985).

The current total GDP and the real major spending of exports are the only items taken into account. Let consumption (C) plus Investment (I), plus exports (X) minus imports (M) equals GDP: (C +I) + (X-M) =GDP (E). This quantity is not a physical volume and known for the set of deflated export values at a certain base year price, in a form of "real value." It is only an accurate measure of real value when there are no changes in terms oftrade (Hall, 2011). Inflation and GDP growth are the two most frequently used variables to monitor macroeconomic indicators of how the economy performs. These are also the objects more investigated for modeling methods. The GDP gap was found to impact inflation (Qin, Cagas, Ducanes, Magtibay-Ramos, and Quising, 2008). There are reports of a negative correlation between inflation and GDP growth for average inflation rates that are greater than 10%. The available annual data on inflation and the rate at which GDP grows allow for testing of casual relations by using lagged values of their gressorsin a dynamic panel data model. The impact of inflation and GDP is estimated using annual data collected. The results found with the data showed that the statistical relation between inflation and GDP is highly periodic-specific (Arai, Kinnwall, and Thoursie, 2006).

Economic growth is essentially an increase in real GDP visualizing an increase in the value of goods and services produced in an economy. The rate of economic growth is the annual percentage increase in real GDP. There are several factors affecting the economic development and growth that can be split into 1) Demand-side factors (the extent of consumer spending) and, 2) Supply-side factors (the strength of productive capacity). The data obtained (Amadeo, 2018) has been aggregated over a 10-year period from 1930 to 2010 to see whether there are patterns of ten-year aggregates of unemployment rates, GDP growth, and inflation as provided in Figure 2. Apparently, there is no pattern that we can visually point out to. However, additional statistical analysis is needed to conclude the

Conclusions

Evidently, GDP can be statistically expressed as a linear function of unemployment and inflation. The analysis of multiple regression has concluded that GDP = 3.00081 - 0.06719 X UNMP + 0.24815 X INF, where UNMP = unemployment rate and INF = inflationrate whilst the percentages of distribution of residuals for GDP remains normally distributed. Loosely speaking, inflation rates can be significant and fall into the negative territory rapidly, anytime soon. In fact, at least thirteen times there has been negative inflation (deflation) reported during the period from 1915 to 2015. Additionally, the distribution of the differences between unemployment, inflation, and GDP considering the quantities, UNMP – INF is right skewed and that of INF – GDP is exhibiting symmetry whilst they both are unimodal. The ARIMA (2, 1, 0) model applied to GDP rates providedthe estimates beyond the year 2018. This time series forecasting method is valid only in short-term predictions requiring at least 40 past data points. The findings have shown that for the next five years the GDP remains in-between 3.5% and 4.5%. A similar application procedure can be used to forecast unemployment rates and inflations for the determination of estimates beyond 2018 for a few more years.

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