Inflation, unemployment, labor force change in the USA

I.O.Kitov

Abstract

Inflation in the USA for the period between 1960 and 2004 is studied in the framework of evident rigidity of personal income distribution normalized to the total nominal GDP. Inflation is found to be a mechanism, which counters changes in the relative incomes induced by economic growth and population changes - both in number and age structure. A model is developed linking the measured inflation (consumer price index or GDP deflator), unemployment and change in labor force. During the last twenty-five years, unemployment in the USA has been a lagged linear function of inflation. In turn, inflation has also been a lagged linear function of relative change in labor force with time. The lag is currently three years.

Only a small decrease in labor force participation rate is currently observed in contrast to a strong increase between 1965 and 1990. According to the indicated relationship, the well-known stagflation period clearly resulted from the lag: the sharp increase in inflation coincided in time with the high unemployment induced by the high inflation period two years before. One can predict the unemployment rate in the USA in the following two years within the accuracy of inflation measurements. For example, the end of 2005 is a pivot point from a period of decreasing unemployment to one of moderate growth from 5% in 2005 to 6% in the middle of 2008. Starting in 1960, cumulative values of the observed and the model predicted unemployment are in agreement with the lag between inflation and unemployment.

Inflation is defined by a lagged linear function of rate of change in labor force. The observed and predicted inflation almost coincide for the last forty years of annual measurement values, smoothed by a five-year wide moving window curves and as cumulative curves as well. Deviation of the curves before 1960 can be explained by a degraded accuracy of the measurements. A severe decrease in the rate of change of labor force is expected after 2010. This drop can potentially induce a long-term deflationary period. The same effect has been observed for Japan starting in 1990.

There are numerous implications of the results for monetary and social policy-makers. The most important is an absence of any means to control inflation and economic growth except though a reasonable labor policy. In addition, some urgent measures are necessary to prevent the start of a deflationary period in 2010-2012.

JEL classification: E3, E6, J21

Key words: inflation, unemployment, labor force, USA, time series models