

## Empirical Investigation of the Impact of Core Inflation on Economic Growth in Iran: Application of MIDAS Models

Ashrafi, Y.<sup>1</sup>, Balounejad Nouri, R.<sup>2\*</sup>, Jahangard, F.<sup>3</sup>

### Abstract

From the monetary authority perspective, all parts of fluctuations in CPI do not have the same importance for implementing monetary policy and do not also have an equal impact on economic growth. The CPI fluctuations can be separated into two main parts: permanent and temporary or transient. In the long run, the changes in relative prices which originate from temporary shocks, because of price flexibility and substitution of goods by consumer, will be adjusted and, as a result, will not have a significant effect on inflation and economic growth. Therefore, monetary authority should not take into account the temporary part of CPI fluctuations in implementing the monetary policy. Some economists believe that it is better for monetary authorities to implement the policies only based on the core inflation. In the present study, we first calculated the core inflation and then investigated the effect of core inflation on economic growth. To this end, we used the data in the 2005-2018 period and the MIDAS method. The results indicated that financial depth, core inflation and oil revenues have a significant and negative effect on economic growth. The results further showed that openness, government spending on infrastructures, capital stock, and active population have a significant and positive effect and employment permits have no significant effect on economic growth.

**Keywords:** Economic growth, Core inflation, MIDAS.

**JEL Classification:** E3, O4, B23.

### 1. Introduction

From the perspective of central banks, all of changes in the consumer price index (CPI) are not equally important for implementing monetary policies because part of changes in this index is permanent and other part is temporary and transitory, and we should not react against temporary changes (Gamber et al, 2015). So, some economists believe the central banks of different countries, including the countries that policies follow inflation targets, are not to base their own political decisions on changes in the consumer price index, and had better focus on core inflation.

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1. Faculty of economics, Ferdowsi University of Mashhad **Email:** yektaashrafi@gmail.com

2. Faculty of Economics, University of Mazandaran **Email:** Roozbeh\_noury@yahoo.com

3. Ph.D. student at the University of Allama Tabatabaie University **Email:** fateme\_jahangard@yahoo.com

The purpose of this paper is to investigate the effect of inflation on economic growth so that targeting the macro policies of the country to stabilize inflation and increase production in the country is explained. To achieve this goal, two actions were taken as follows: First of all, the core inflation was calculated using the Mean Time Method and monthly data Time Series; second, in the form of a multivariate model and using Combined Data (MIDAS), the effect of core inflation on economic growth was investigated for the period of 2005-2019.

## **2. An Overview of the Subject Literature**

### **2-1. Theoretical Foundations**

#### **2-1-1. The Importance of Inflation in Policy Making**

One of the most effective ways to achieve a stable and single-digit inflation is the adoption of the inflation target word. To achieve this goal, two steps need to be taken. The first step is to carry out institutional and structural reforms in the field of monetary and financial policies. The second step includes wise decisions and policies about the behavior and future path of the variables affecting inflation, such as Exchange Rates, Monetary Base and Budget Deficits. Regarding economic policy, the main goal of the monetary policymaker is the stability of prices. In the past decade, the focus of monetary policymakers in that world was mainly on inflation control. So, monetary policymakers should be able to anticipate inflation in future periods with an acceptable accuracy (Mehrara and co-worker, 2015). Besides, one of the ways to predict the rate of inflation is to calculate the Core Inflation. Because Core Inflation has fewer changes and in the medium term, it will provide a better prediction for the inflation rate, it can be well used to predict inflation rate and inflation targeting, and it has higher predictive power than the overall inflation rate. So, in the first step, there is a need to see how the Core Inflation is calculated and, then, we can examine its effect on economic growth.

#### **2-1-2. Core Inflation**

Core inflation can be a reliable index than total inflation for developing monetary policies and policy analysis. Because the different shocks or impulses recorded in the examined periods are out of this index, give a more realistic picture of the performance and impact of policies. There are at least three different points of view on core inflation that we can classify as follows. The first view is the one proposed by Eckstein (1981), which defines inflation as the inflation rate that happens in the long path to economic growth. There are no impulse in the long term route to economic growth, and given that markets are in long-term equilibrium, the demand side of economy is neutral.

The second view was proposed by Quah & Vahey (1995), and considers Core Inflation as a part of total inflation and does not have a medium and long term effect on real production. They believe that in addition to the demand shocks that do not have an effect on real production, the part of demand side shocks

have the same characteristic. So, the Core Inflation is a combination of demand and supply shocks.

The third view is about the central banks. This view is based on the elimination or reduction of the effects of high fluctuation components. In this view, during the time, the Core Inflation usually has less fluctuation than total inflation, and shows the growth rate of prices in the form of adjusted periodical and seasonal fluctuations.

## 2-2. An Overview of Empirical Studies

Mousavi and Soltani (2016), investigated the growth of production and inflation in Iran from 1971 to 2014. Fallahi et al. (2011) investigated the growth of production and inflation in Iran. Gamber, Smith and Eftimoiu (2015), investigated Core Inflation with CPI and PCF indexes for U.S. Kalay (2017) investigated the effect of Core Inflation on economic growth and employment for the period from 1975 to 2014. The results of his study showed that when demand increases, the inflation rate is higher than the Core Inflation, and vice versa.

## 3. Model

The research model is based on the Armosto model (Brito et al, 2010) as follows:

$$L(GDP)_t = C (1)*L(K)_t + C (2)*L(MM)_t + C (3)*L(G)_t + C (4)*L(OPE)_t + C (5)*L (INF)_t + C (6)*L (POP)_t + C (7)*L (OIL)_t + C (8)*L (L)_t + \varepsilon_t$$

In the above equation, , the variables used in the study GDP at constant prices in 2011, investment permits as a proxy Of capital stock (K), Financial Depth (MM) as the ratio of Liquidity to GDP, Government Development Costs (G), Commercial Freedom (OPE) as the ratio of imports and exports to GDP, The ratio of Core Inflation (INF), Employment Permits (L) as a substitution to the employment variable, oil revenues ( OIL), and active population (POP).

## 4. The Results of Model Estimation

The stationary of the variables was tested and the results showed that if we get a differential from all variables, then they are stationary. For this reason, we have investigated and tested the relationship between long-term variables. The results of the Cointegrate Test showed that the variables of the model have a long-term relationship. So, research model was estimated using Cointegration method.

## 5. Conclusion

In this paper, the effect of inflation on economic growth in Iran was investigated with Maximum Integration Data Acquisition System (MIDAS). The results of modeling showed that the active population, employment, investment, government development costs, and commercial freedom had a positive and significant effect on economic growth. Oil exports and financial depth were

found to have a negative and significant effect on economic growth, employment permits had a positive but insignificant effect on economic growth, and the issuance of investment permits and the convenience of investing are the business indexes that can lead to increased economic growth.

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