

ASYMMETRIC BEHAVIOR OF GOODS AND SERVICES INFLATION IN SELECTED MUSLIM COUNTRIES

Dr. Nursilah Ahmad

Faculty of Economics and Muamalat
Universiti Sains Islam Malaysia
email:nursilah@usim.edu.my

Abstract

Recently, there is concern that the gap between goods and services inflation is getting bigger in the developed economies. The aim of this study is therefore to investigate whether the gap between goods inflation and services inflation has widened in the selected Muslim countries during recent period. If the gap between goods and services inflation is getting bigger and there is rapid continued increase in services prices, this will lead to faster overall inflation. The hypothesis is that when the gap between goods and services inflation is above its long term trend, goods inflation will rise and services inflation will decrease to restore equilibrium. We employ Hodrick-Prescott filter to the CPI and PPI indexes for each country to measure the size of the gap. It is expected that rapid increases in services inflation will be moderated by the decline in goods inflation in the long run in the countries under study.

Keywords: goods and services inflation; Hodrick Prescott filter; Muslim Countries

1. Introduction

Inflation is defined as a sustained increase in the general level of prices for goods and services. It is measured as the percentage rate of change in a country's Consumer Price Index (CPI). Recently, there is concern that services inflation is rising in the developing economies and the trend will continue. Controlling inflation requires a high degree of foresight. Since policy actions to curb inflation usually take effect only after long lags, policy makers need to forecast inflation in designing appropriate policy measures. A period often used in forecasting inflation for policy discussion is 18 to 24-month horizon (Engert and Hendry, 1998). Some economists suggest that a reasonable rate of inflation should be around 3 to 6 percent. At this rate, inflation is often viewed to have positive effects on the economy as it encourages investment and production and allows growth in wages. In recent years, most developed countries have attempted to sustain an inflation rate of 2 to 3 percent.

When inflation crosses reasonable limits, it has negative effects. It reduces the value of money, resulting in uncertainty of the value of gains and losses of borrowers, lenders, and buyers and sellers. The increasing uncertainty discourages saving and investment (Abdul Aleem Khan, 2007). Not only can high inflation erode economy from growth, it also makes the poor worse off and widens the gap between the rich and the poor. If much of the inflation comes from increase in food prices, it hurts poor more since over half of family budget of the low wage earners goes for food. Second, it redistributes income from fixed income earners (for instance pensioners) to owners of assets and earners of large and variable income, such as profits.

Several supply and demand factors could be responsible for this surge in inflation. Supply-side shocks can cause large fluctuations in food and oil prices, effects of which on overall inflation, at times, can be so excessive that these cannot be countered through demand management, including monetary policy. First, increased domestic demand created an output gap, putting upward pressure on prices. Growth in private consumption is a signal of demand side pressures on price level.

The relationship between growth and inflation depends on the state of the economy. High growth, without an increase in inflation, is possible if the productive capacity or potential output of the economy is growing enough to keep pace with demand. This is also possible if the actual output is below the potential output and there is sufficient spare capacity available to cope up with the demand pressures.

In this study, we attempt to investigate whether the gap between goods inflation and services inflation has widened in the selected Muslim countries over the period under study. If the gap between goods and services inflation is getting bigger and there is rapid continued increase in services prices, this will lead to faster overall inflation. Hence, it is expected that the goods inflation will take the burden of adjustment in the long run.

This paper is organized as follows. The next section, Section 2 provides some background on inflation and its relation to Islamic economic system. In Section 3, we provide the empirical methodology followed by the results in Section 4. Finally, Section 5 concludes and summarizes the discussion.

2. Inflation and Islamic Economic System

The following are among the few aspects of the Islamic economic system that would help lower and control inflation (MHCNiazi, 2008). There are briefly reproduced as follows:

i. Hard Currency Tied to Gold Standard

The Islamic system requires currency/medium of exchange to be based on the gold and silver standard which have an intrinsic value. Notes can be used to represent the precious metals instead of carrying gold and silver around, but they must be backed up by them. Due to the intrinsic value in the precious metals stability is achieved and devaluation and inflation controlled.

ii. No Artificial Money

As well as printing, money is also artificially created via bank loans. Banks regularly loan out more money than they have and there is in circulation, that is, they lend what they don't have. This artificial consumer spending power also leads to inflation, as artificially increased money supply is competing in chasing limited goods. This will also lead to excessive consumerism.

iii. Ownership of Oil, Gas and Natural Resources

Pricing and inflation is also linked to the cost of energy resources. The price of a barrel of oil is rising exponentially and likewise is the cost of production and transportation. This has a direct effect on the price of all commodities especially the basic necessities such as food items. High-energy costs are also affected by government taxes and drive for profits by companies and this contributes to inflation.

Islam's solution is based on its view of ownership and permissibility of generating profits from natural resources. Islam defines three types of ownership: (1) individual; (2) public; and (3) state property. The Prophet S.A.W. in his *hadith* has included natural resources that combust (oil field, gas field, coal mine and others) as public property as well as other natural resources. Public property can not be transferred to the state or private sector, but remains the property of the public (Muslim *ummah*) and is run by the Islamic state for their benefit on a non-profit, non-tax basis. Any profit generated by selling surplus oil to friendly non-Muslim countries must be spent on the *ummah*. Hence, the Islamic view on natural resources can provide guidelines in reducing prices and controlling inflation.

iv. No Hoarding to Manipulate Supply and Demand

Government intervention in the form of either price ceiling or price floor leads to market intervention and deadweight loss. The resulting market inefficiency in the form of shortage or surpluses lead to either black market or hoardings. In the free-market economy, suppliers hoard essential items in an attempt to artificially affect supply and demand in order to push up prices. The Islamic system would actively prevent hoarding and the artificial manipulation of supply and demand.

v. *Revival of Dead Land*

According to the narration of the Prophet Muhammad S.A.W, a Muslim who revives a dead *Khiraji* land, which was never cultivated since Muslims opened it, would own the neck (narrow part) as well as its produce. Furthermore, any Muslim or *Zimmi* (non-Muslim citizen of the Islamic state) who revives a dead *Khiraji* land on which *Khiraj* was applied in the past would own the produce, whilst the neck would remain with the State. The concept being whoever revives a dead land can benefit from it. This presents a great incentive for poor farm workers and others to take advantage of this Islamic rule and revive dead land and the whole state would benefit. Poverty would be reduced, employment would increase and so would production. Increased production leads to increased supply and therefore cheaper prices and lower inflation.

Siddiqi (1996) discusses four "built-in stabilizers" inherent in Islamic economic system fiscal policy to help curb inflation. First, equity and sharing based finance which are non inflationary and stable as an alternative to conventional debt financing. Second, *zakat*, inheritance laws and other redistributive provisions in Islam will change the composition of aggregate demand thereby reducing the fluctuations in aggregate demand. Third, moderation concept in Islamic consumption pattern and avoidance of wasteful expenditure will reduce aggregate demand. Finally, state authority in Muslim countries, treating public money as *Amanah*, will keep public expenditure at the optimal level by minimizing public expenditure and avoiding deficit financing.

The author also mentioned that the type of inflation experienced in early Islamic history was short lived. Most of the times what causes inflation were climatic conditions or disruption in transportation that caused a failure in supply leading to sharp rise in food prices. According to him:

"Putting an end to debasement of currency and meeting rise in prices by arranging for increased supply are policies rooted in Islamic tradition, the difference in the nature of inflation notwithstanding. These policies are likely to evoke public cooperation as well as endorsement by the *Ulama*. The two other fiscal measures noted above, reduction in public expenditure (with welfare provisions bearing most of the cut) and increased taxation (and domestic borrowing) are doubly doomed. They are not practical. They have no roots in the Islamic past, hence they do not sound familiar, neither to the populace nor to the *Ulama*."

On the other hand, economists generally agree on two causes of inflation. The first one is demand pull inflation. This theory can be summarized as "too much money chasing too few goods". In other words, if demand is growing faster than supply, prices will increase. This usually occurs in growing economies. Second is cost-push inflation. When companies' costs go up, they need to increase prices to maintain their profit margins. Increased costs can include things such as wages, taxes, or increased costs of imports.

Inflation affects different people in different ways. In fact, inflation is a sign that an economy is growing. It also depends on whether inflation is anticipated or unanticipated. If the inflation rate corresponds to what the majority of people are expecting (anticipated inflation), then we can compensate and the cost isn't high. For

example, banks can vary their interest rates and workers can negotiate contracts that include automatic wage hikes as the price level goes up.

However, there are costs to inflation. Problems arise when there is unanticipated inflation. First, creditors lose and debtors gain if the lender does not anticipate inflation correctly. For those who borrow, this is similar to getting an interest-free loan. Second, uncertainty about what will happen next makes corporations and consumers less likely to spend. This hurts economic output in the long run. Third, people living off a fixed-income, such as retirees, see a decline in their purchasing power and, consequently, their standard of living. Fourth, the entire economy must absorb repricing costs (menu costs) as price lists, labels, menus and more have to be updated. Finally, if the inflation rate is greater than that of other countries, domestic products become less competitive. The impact of inflation therefore depends on the overall health of the economy.

3. Research Method

The countries selected for the study are countries that are categorized as Middle Developed countries (MDC) namely: Lebanon, Malaysia, Morocco, Pakistan, Syrian, and Tajikistan. However, due to data unavailability, selections are done randomly. Countries included are Malaysia, Morocco, Pakistan, Saudi Arabia and Turkey. Data are annual and ranging from 1960 to 2004. Data are mostly in constant 2000 prices and are sourced from the International Financial Statistics (IFS) online.

In this paper, we model the long run relationship between goods and services inflation using proxies. For goods inflation, Industrial Price Index (IPI) or Wholesale Price Index (WPI) is used as proxies. For services inflation, we used CPI (excluding petroleum) as a proxy, where available. This might not accurately measure goods and services inflation, but this is the limitation of the research. In addition, empirical studies on goods and services inflation gap are more on commonly performed on the developed economies.

The inflation gap is defined as the difference between actual and potential inflation where potential inflation is an unobservable variable that reflects the maximum level of inflation. The industrial production index (IPI) is used as the proxy for real output. The inflation gap is estimated as the log difference between actual output and its Hodrick-Prescott (HP) filter. HP filter decomposes output into permanent and transitory components generating a smoothened trend of output. The generated smoothened series is the estimated potential output.

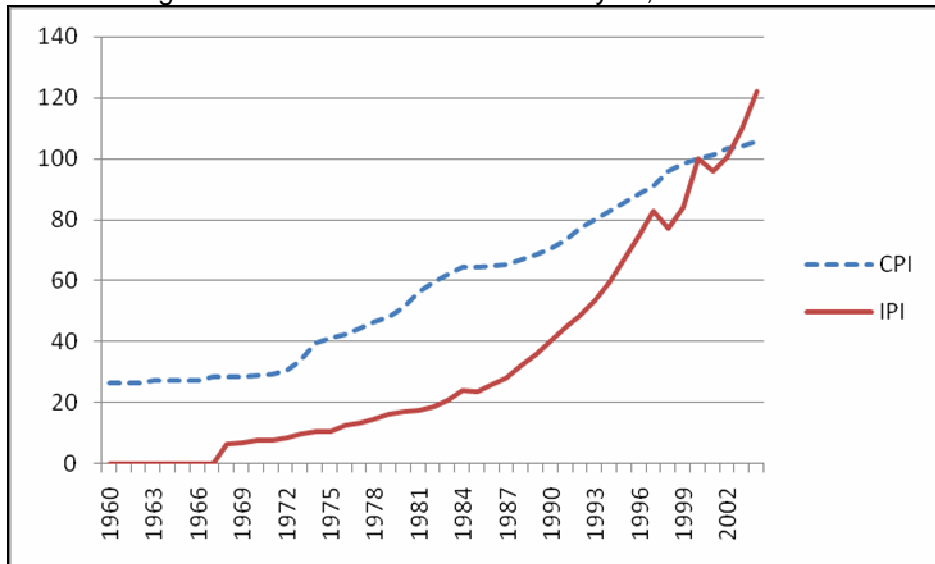
4. Findings

Figures 1-5 below illustrate the trend of IPI/WPI and CPI for the selected countries under study. Overall, the indexes are trending upwards and there exist noticeable differences between them in all countries. For Malaysia, the gap is smaller in recent years and the IPI is rising at a much faster rate. This probably indicates that the goods inflation takes the burden of adjustment in the long run.

Meanwhile, CPI is higher than IPI/WPI in the case of Malaysia and Saudi Arabia only. For Saudi Arabia, Morocco and Pakistan, the two indexes seem to trend together in the

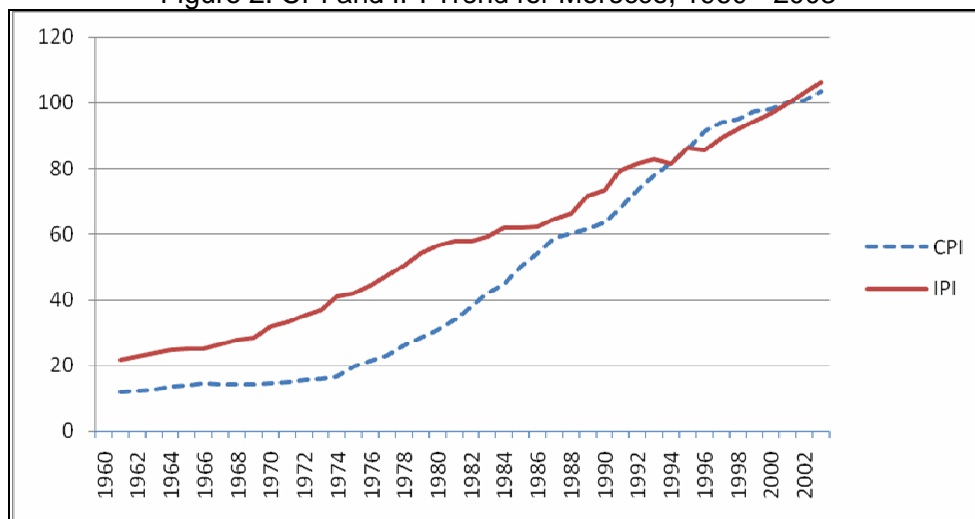
long run and the gaps between them tend to gradually diminish. On the other hand, the gap between IPI and CPI seems to widen in the case of Malaysia and Turkey. The situation in Turkey is quite interesting because CPI seems to escalate after the year 2000. These might be due to Turkey's country specific macroeconomic performance.

Figure 1: CPI and IPI Trend for Malaysia, 1960 – 2004



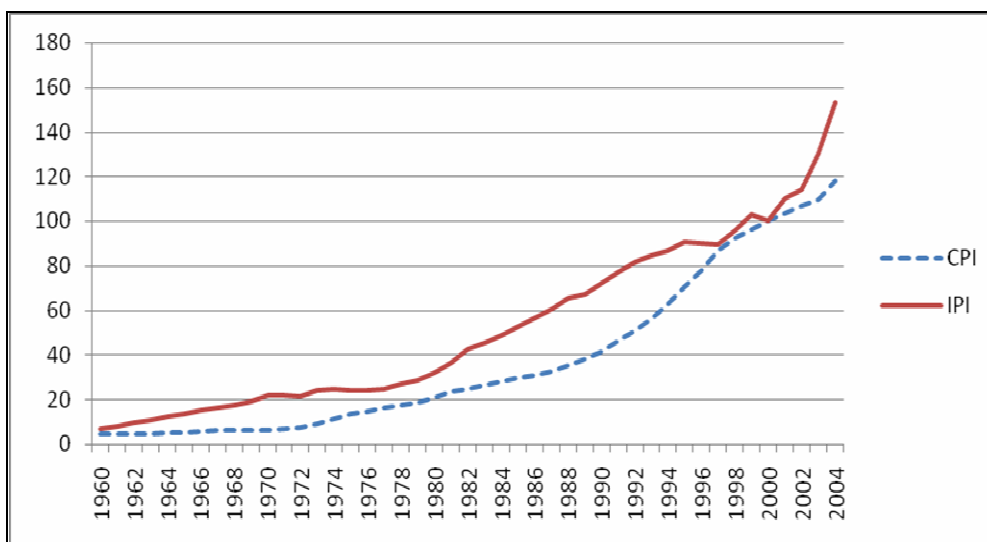
Source: IFS Online

Figure 2: CPI and IPI Trend for Morocco, 1960 - 2003



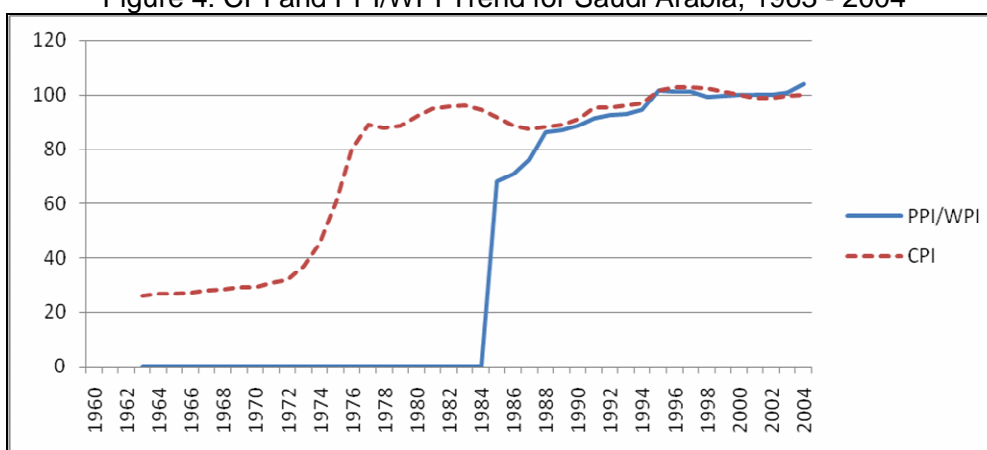
Note: CPI: 8 major cities. Source: IFS Online

Figure 3: CPI and PPI Trend for Pakistan, 1960 - 2004



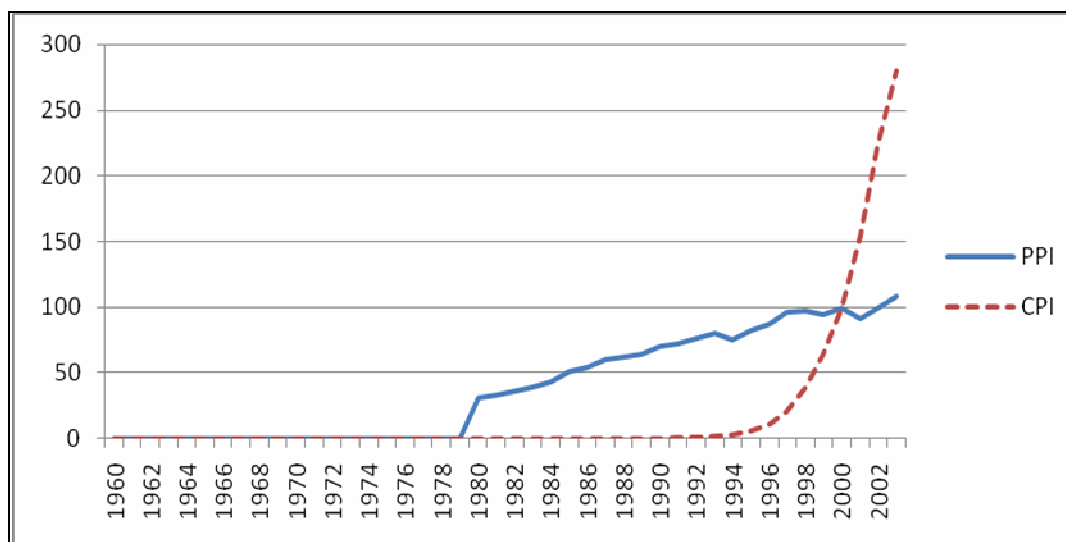
Note: CPI: 10 major cities. Source: IFS Online

Figure 4: CPI and PPI/WPI Trend for Saudi Arabia, 1963 - 2004



Note: CPI: 10 cities. Source: IFS Online

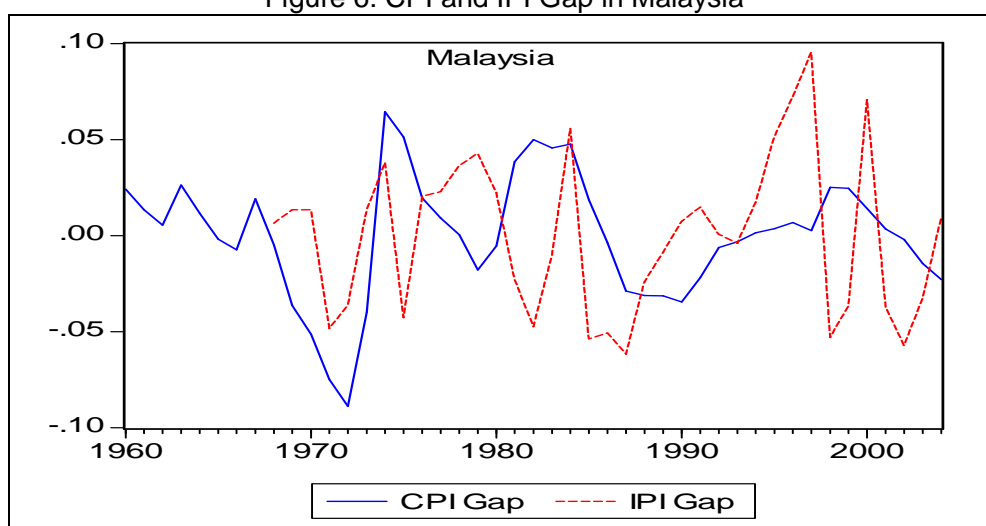
Figure 5: CPI and PPI/WPI Trend for Turkey, 1960 - 2003



Source: IFS Online

Next, we calculate the size of the gap between CPI and PPI index for each country by applying Hodrick-Prescott filter. There seems to be an symmetric behavior of goods and services inflation in Malaysia, Pakistan, Morocco and Turkey based on Figure 6, 7, 8 and 10. For Arab Saudi, based on visual inspection, the two variables are moving closely together, probably suggesting that both types of inflation are moving towards equilibrium at an approximately equal speed.

Figure 6: CPI and IPI Gap in Malaysia



Source: Author's calculation

Figure 7: CPI and IPI Gap in Pakistan

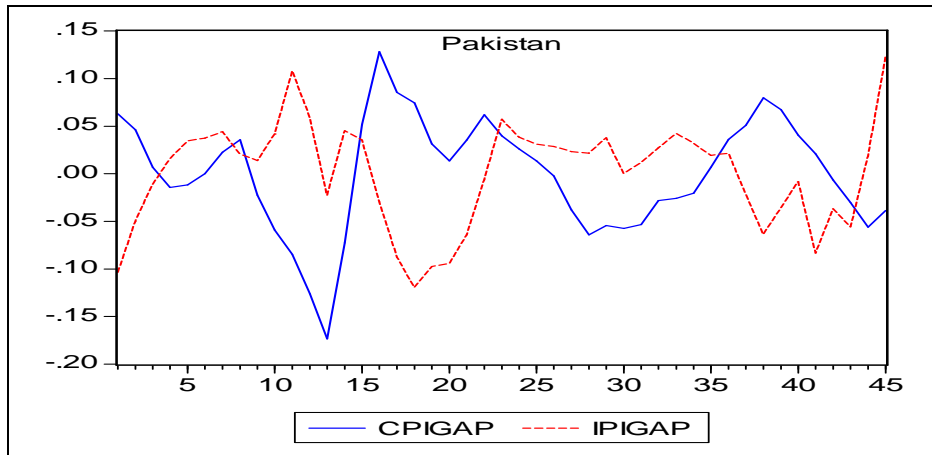


Figure 8: CPI and IPI Gap in Morocco

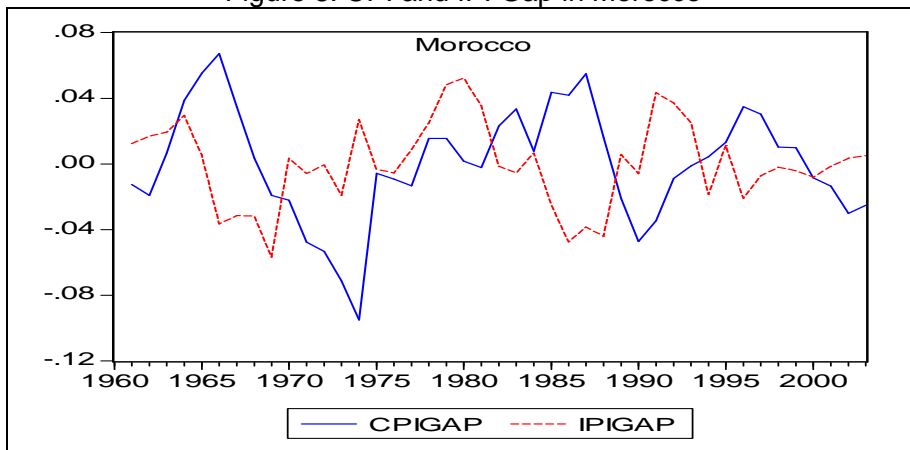


Figure 9: CPI and IPI Gap in Saudi Arabia

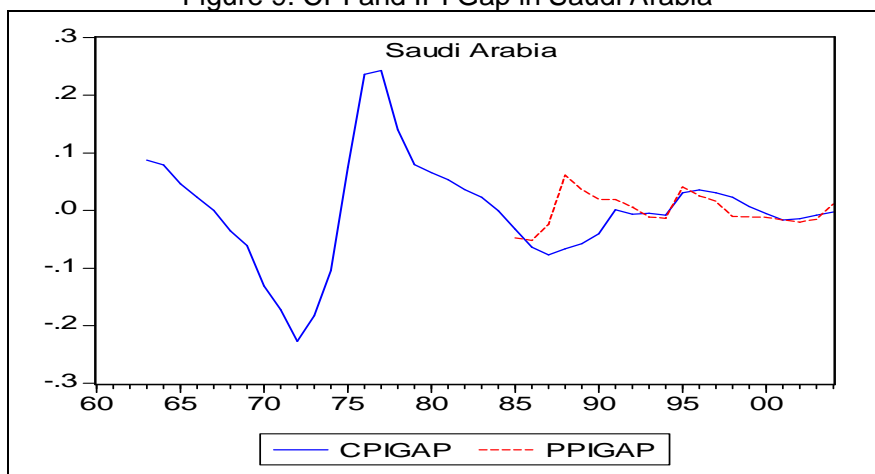
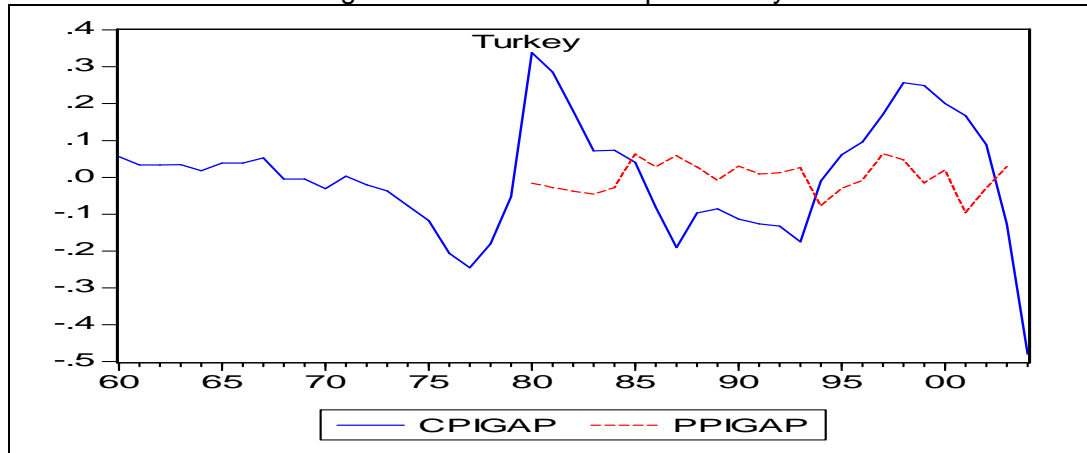


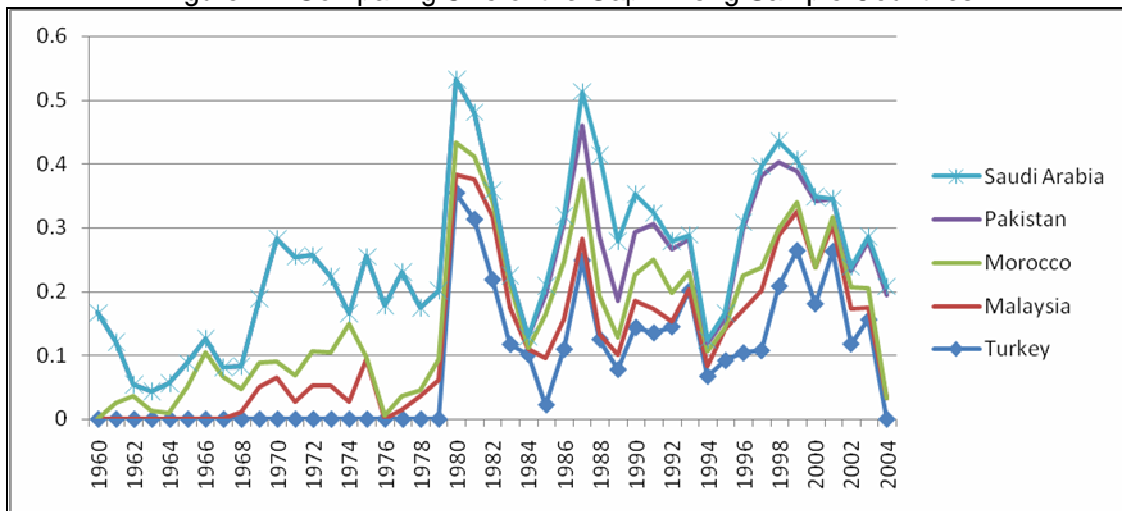
Figure 10: CPI and IPI Gap in Turkey



Source: Author's calculation

To compare the overall size of the gap, we measure the difference between actual and potential PPI and CPI for each country under study. The difference in CPI gap and PPI/IPI gap are then plotted and illustrated in Figure 11 for all five countries. Saudi Arabia and Pakistan both display higher degree of the size of gap. Morocco, Malaysia and Turkey have almost similar patterns and the size of the gap is mostly below 0.3. To interpret the results, it is most likely that in the case of Arab Saudi and Pakistan, neither types of inflation takes the burden of adjustment towards equilibrium in the long run. This means that policy makers need to take appropriate measures to prevent inflation from rising in these countries. As for the other three countries, even though the two gaps are trending together, the size of the difference are getting bigger after 1980s and trending downwards after 2004.

Figure 11: Comparing Size of the Gap Among Sample Countries



Source: Author's calculation. All values are in absolute figures.

5. Conclusion

The paper attempts to establish the size of the gap between goods and services inflation in five Muslim countries namely Malaysia, Morocco, Pakistan, Saudi Arabia and Turkey covering the period of 1960 to 2004. For each country, the IPI and CPI variables are used to represent goods and services inflation, respectively. The Hodrick-Prescott Filter was applied to each indicator to measure the size of the gap. The findings indicate that the goods and services inflation behaves asymmetrically in four out of five countries under study. The overall pattern indicates that the gap tends to close in the long run, which suggests that goods inflation take the burden of adjustment in the long run. This is probably due to the fact that in most developing economies, about 40 to 50 percent of the items in the CPI basket are controlled items. However, these controlled items are also mostly imported, which raises the issue of imported inflation. On the other hand, Saudi Arabia and Turkey both display higher differences in the size of CPI and PPI gap starting from 1980 onwards. The results indicate these two countries will experience rising inflation in the future if the policy makers didn't have inflation targeting policies.

References

- Abdul Aleem Khan, S. Kalim Hyder and Dr Qazi Masood Ahmed. 2007. "Identifying Causes of High Inflation," *Pakistan Defense Forum*, <http://www.dawn.com/2007/01/15/eb8.htm>
- Amir Kia, 2004. "Deficits, Debt Financing, Monetary Policy and Inflation in Developing Countries: Internal or External Factors?" *Carleton Economic Papers* 04-15, Carleton University, Department of Economics.
- Bryan, Michael F. and Cecchetti, Stephen G. 1993. "The Consumer Price Index as A Measure of Inflation," Federal Reserve Bank of Cleveland *Economic Review* 29, No. 3.
- Cecchetti, Stephen G. et al. 2000. "The Unreliability of Inflation Indicators," *Current Issues in Economic and Finance*, Vol. 6, No. 4. Federal Reserve Bank of New York.
- Darrat, A. F. (1997), Domestic and International Sources of Inflation in Some Muslim Countries: An Empirical Inquiry, *The Middle East Business and Economic Review*, 9 (1): 14-24.
- Dickey, D.A. and Fuller, W.A. 1987. "The Likelihood Ratio Statistics for Autoregressive Time series With a Unit Root," *Econometrica*, 49(4): pp. 251-76.
- Engert, Walter and Hendry, Scott. (1998). "Forecasting Inflation with the M1-VECM: Part Two," Working Paper 98-6, Bank of Canada.
- Enders, W. (1995), *Applied Econometric Time Series*, John Wiley & Sons, Inc., p.257.
- Engle, R.F. and Granger, C.W.J. (1987), Co-Integration and Error Correction: Representation, Estimation and Testing. *Econometrica*, Vol. 55, pp. 251-276.

Gujarati, D.N. (1995), Basic Econometrics, Third Edition, International Edition, McGraw Hill Inc., USA.

Fisher, Jonas D.M. 2000. "Forecasting Inflation With a Lot of Data," *Chicago Fed Letter*, no. 151. March.

Ibrahim, Mansor H. 1996. "Inflationary Behavior in Malaysia: An Empirical Re-Evaluation of its Determinants," paper presented at 4th Malaysian Econometric Conference, Park Royal Hotel, Kuala Lumpur. 9-10 October, organized by MIER.

Ito, T. Sasaki, Y. and Sato, K. 2005. "Pass-Through of Exchange Rate Changes and Macroeconomic Shocks to Domestic Inflation in East Asian Countries," Discussion Paper Series 05-E-020, Research Institute of Economy, Trade and Industry (RIETI), Japan.

Johansen, S. 1988. "Statistical Analysis of Cointegrating Vectors," *Journal of Economic Dynamics and Control*, 12: pp. 231-254.

Johansen, S. and Juselius, K. 1990. "Maximum Likelihood Estimation and Inference on Cointegration with Applications to the Demand for Money," *Oxford Bulletin of Economics and Statistics*, 52(2): pp. 169-210.

MHCNiazi. 2008. "Inflation Control and Islamic Economics," *Pakistan Tribune Forum*, 11 July 2008.

Peach, Richard W., Rich, Robert, and Alexis Antoniadis. (2004). "The Historical and Recent Behavior of Goods and Services Inflation," *FRBNY Economic Policy Review*, Federal Reserve Bank of New York.

Phillips, P.C.B. and Perron, P. 1988. "Testing for a Unit Root in Time Series Regression," *Biometrika*, 75(2): pp. 335-346.

Siddiqi, Muhammad Nejatullah. 1996. "Role of Fiscal Policy in Controlling Inflation in Islamic Framework," Centre for Research in Islamic Economics, King Abdul Aziz University, Jeddah, Saudi Arabia.

Stock, James H. and Watson, Mark W. 1999. "Forecasting Inflation," NBER Working Paper No. 7023.