PAPER

Revisiting Nonlinear Inflation – Growth Relationship: a Multidimensional Nonlinear Robust Approach

Noman Arshed[*] • Muhammad Shahid Hassan[**]

Abstract The changes in aggregate demand or aggregate supply vibrate economic activities in the goods market, further affecting the market's general price level. Therefore, one of the prioritized objectives of the policymakers in any economy is to manage the price level. Steady rising prices assist producers in expansion for higher profits, while high inflation discourages consumers. Based on this argument, the inflation growth dilemma using the quantile on quantile (QQ Model) approach for the 73 selected economies of the world will be investigated in this study. The study has found that general prices have a nonlinear and significant impact on GDP per capita in the 73 selected countries. This nonlinearity depends on the level of general prices and depends on the level of GDP per capita and development. The contour plots provide the optimal strategy to minimize the negative effects of inflation on GDP.

Keywords: Quantile-on-Quantile Approach, Nonlinear effects.

JEL Classification: E31.

1. Introduction

One monetary policy objective is to ensure a low and stable inflation rate to achieve financial stability and long-run stable economic growth (Bernanke, 2011). The low and stable inflation allows the smooth functioning of the markets, facilitating the efficient allocation of resources. It also helps the economic agents build up their confidence to decide to consume and invest respectively freely. Therefore, the monetary authorities desire low and stable inflation in order to enjoy sustainable economic growth. Inflation influences economic growth differently. The most prominent path which inflation takes

Noman Arshed[*](✉), Muhammad Shahid Hassan[**]

[*] Assistant Professor, Department of Economics and Statistics, University of Management and Technology, Lahore Pakistan.
E-mail: noman.arshed@umt.edu.pk
[**]Assistant Professor, Department of Economics and Statistics, University of Management and Technology, Lahore Pakistan.
E-mail: shahid.hassan@umt.edu.pk

is through production decisions. For a representative firm, initiating output production requires prices to increase at a certain rate to achieve average profit. As predicted by firm theory, new firms will enter the production process and increase economic output if prices increase beyond it. After this macroeconomic phenomenon of misperception theory, sticky-price and sticky-wage theory play their role in increasing output up to the limit where these misperceptions are cleared, prices and wages are no more sticky, and the cost of production jumps with the rise in inflation and hinder economic growth. Consequently, there are two instances in the evolution of general prices where production-related decision changes direction.

Moreover, the empirical studies (Lucas, 1973; Akerlof & Yellen, 1985) concluded that changes in inflation appreciate production decisions, and therefore, production increases in response to an increase in inflation. The studies like Ghosh and Phillips (1998), Khan and Senhadji (2001), Sepehri and Moshiri (2004), Sweidan (2004), Lee and Wong (2005), Drukker et al. (2005), Pollin and Zhu (2006), Li (2006), Schiavo and Vaona (2007), Kan and Omay (2010), Espinoza et al. (2010), Ibarra and Trupkin (2011), Mignon and Villavicencio (2011), and Seleteng et al. (2013) have empirically found nonlinear inverted U-shaped impact of inflation on economic growth. There are some research studies in the literature as Barro (1996), Barro (2001), Singh and Kalirajan (2003), Hodge (2005), Hayat and Kalirajan (2009), and Jha and Dang (2011) and these studies have disclosed the negative impact of inflation on economic growth. Therefore, the inflation-growth trade-off has been inconclusive and has been found to be fragile because it is subject to model specification (Levine & Renelt, 1992; Hineline, 2007).

This article was designed to test the specification of inflation growth dilemma for 73 – selected countries from the world, and the study covers the sample period from 1960 – 2018, which is varying country-wise. Since the variables used are not normal, this study checked the quantile-wise correlations between GDP per capita and CPI. Rather than using the quadratic function or the threshold approach, this study used the quantile on quantile approach to explore for every quantile of CPI on every quantile on GDP per capita and further exploring to different development groups. This evaluation will help map CPI management and, consequently, lead to GDP per capital target management. The rest of the study has been organized as in the second section. We will briefly review the past studies and in the light of these studies. We will also discuss how this study is different from past studies. After reviewing the literature, data sources, methodological framework, and estimation procedure will be discussed in section three. Besides section three, we would like to estimate empirical results, and then we will discuss the results and their rationale in the light of past studies in section four. Lastly, in section five, we will summarize our findings, and based on such findings, we will possibly suggest some policy implications.

2. Literature Review

Different researchers have tested the association between inflation and economic growth, and these studies are examined below.

This study will start this section with the researchers' contribution to the nonlinear impact of inflation on economic growth. They found evidence of an inverted U-shaped or U-shaped relationship between both macroeconomic indicators. The study conducted by Ghosh and Phillips (1998) investigated the nonlinear effects of inflation on economic growth for considering 145 countries. They applied multiple regression analysis for the period from 1960 – 1990. The empirical findings of their study showed that inflation has a nonlinear relationship with economic growth in these countries.

Moreover, this nonlinear relationship was found to be inverted U-shaped. Further, Khan and Senhadji (2001) using Non-Linear Least Square with Fixed Effects and Log-Likelihood Ratio methods on the data series from 1960 – 1998 for 140 countries. They found that inflation has an inverted U-shaped impact on economic growth in these countries. Moreover, they also found that the threshold level of inflation ranged from 1% to 3% for developed and 11% to 12% percent for developing countries, respectively. Sepehri and Moshiri (2004) explored the nonlinear association between inflation and economic growth into four groups: Upper Middle-Income Countries, Middle-Income Countries, Lower Income Countries, and OECD Countries. The study found evidence of a nonlinear relationship between inflation and economic growth in the first three groups, respectively. However, in the last group, the study did not find any evidence of a nonlinear relationship between inflation and economic growth. Moreover, the threshold levels of inflation were 5%, 15%, and 11% for Upper Middle-Income Countries, Middle-Income Countries, and Lower-Income Countries, respectively. The study concluded that inflation became harmful for economic growth beyond the cut-off inflation into these groups.

Afterward, in the same year, Sweidan (2004), applying the ARCH Model on the monthly data covering the period from 1970 – 2000 of Jordan's economy, found an inverted U–shaped relationship between inflation and economic growth. The study further found that economic growth will tend to decline after a 2% cut-off inflation in Jordan. The study made by Burdekin et al. (2004) using Panel Generalized Least Square with Panel Fixed Effect Model for Developed (contains 21 countries) and Developing (contains 51 countries) countries on the sample period for developed countries ranges from 1965 to 1992 and for developing countries ranges from 1967 to 1992. They found the nonlinear impact of inflation on economic growth in these countries. However, they found multiple threshold points for both sets of countries. For instance, they found two threshold points in developed countries: 8% and 25%. The findings revealed that below the 8% threshold level of inflation, the impact of inflation on economic growth was negative and insignificant; however, above 8%, but below 25% threshold level of inflation, the impact of inflation on economic growth is

negative and significant. Moreover, the study found three threshold levels of inflation in developing countries: 3%, 50%, and 102%, respectively. The effect of inflation on economic growth remains negative but significant if a threshold level of inflation varies from 3% to 50%. The same result has found that if inflation becomes larger than 102%, and for a threshold level of inflation below 3 percent, then the effect of inflation on economic growth was negative and insignificant in developing economies.

After applying the Johansen Multivariate Cointegration approach, Ahmed and Mortaza (2005) found that inflation has a negative and significant impact on economic growth in the long run. Moreover, the study also found that economic growth responds inversely beyond the 6% threshold level of inflation. The nonlinear relationship between economic growth and inflation for Taiwan and Japan was tested by Lee and Wong (2005). They considered a sample period for Taiwan from 1962 to 2002 and for Japan from 1970 to 2001, and they found that inflation has a nonlinear impact on economic growth, and cut-off inflation for Japan was found to be 9.66% and 7.25% for Taiwan, respectively. If inflation increases after each country's respective threshold level, it will deteriorate these countries' economic growth.

The study by Drukker et al. (2005) took a sample of 138 economies for the sample, ranging from 1950 to 2000. They found a nonlinear impact of inflation on economic growth in these countries, and the global threshold level of inflation was 19.16%. In the year 2006, Pollin and Zhu (2006) for 80 OECD, middle and low-income countries of the world investigated the nonlinear association between inflation and economic growth, and they considered the period from 1961 to 2000. They found a nonlinear relationship between inflation and economic growth in these selected countries; whereas, the threshold level of inflation was found to be from 15% to 18%. The study concluded that below this cut-off point, economic growth was expanding, and beyond this cut-off point, economic growth was detrimental in these countries, respectively.

Li (2006) attempted to test whether inflation and economic growth are linearly related or nonlinearly related. The study took a sample period from 1961 to 2004 for the 117 countries globally. Out of 117 countries, 27 were developing countries, and 90 were developed. The study results confirmed the nonlinear relationship for developed countries, and the threshold level of inflation was found to be 24% for developed countries of the world. That shows that above this threshold level of inflation, economic growth starts diminishing significantly. Moreover, the study found no evidence for a nonlinear relationship between inflation and economic growth for developing economies as the inflation coefficient was insignificant.

Schiavo and Vaona (2007) applied a Semi-Parametric instrumental variable (IV) and nonparametric techniques on the sample of 167 developed and developing countries of the world from 1960 to 1999. They concluded that the nonlinear impact of inflation on economic growth existed in developed countries, not in developing countries. Moreover, the study reported a 12% threshold level of inflation for

developed countries beyond which economic growth started falling. Kan and Omay (2010) worked on the association between inflation and economic growth. They took the sample of six industrialized countries: the US, Japan, UK, France, Canada, and Italy, for the sample period, which ranges from 1972 to 2005. The empirical findings confirmed the existence of nonlinearity between economic growth and inflation in these industrialized countries. The threshold level of inflation was found to be 2.52%, beyond which economic growth started decreasing. During the same year, the global episode of 2007 – 2008 and the consequences of the monetary policies during the global financial crisis motivated Espinoza et al. (2010) to re-examine the nexus between growth and inflation. They applied Panel OLS and Conditional Bootstrap techniques for the data series from 1960 – 2007 for 165 countries worldwide. The empirical findings showed that inflation in the early stages positively affects economic growth; however, it turns out to be dangerous for an economy beyond a threshold point. Moreover, the study found that the threshold point was 10% for emerging market economies, whereas the threshold point was found to be 10% even for oil-exporting countries.

In the same way, the nonlinear impact of inflation on economic growth was examined by Ibarra and Trupkin (2011). They applied the Panel Smooth Transition Regression technique and Panel Fixed Effects Model on the sample period from 1950 to 2007 for more than 120 countries. The empirical results reported that inflation had a nonlinear impact on economic growth in both developed and developing economies. Whereas the threshold level of inflation for developed economies was found to be 4.1%, and the threshold level of inflation was 19.1% for developing economies. Furthermore, the threshold point was found to be 7.9% when the sample size for developing economies was reduced.

Another study conducted by Mignon and Villavicencio (2011) used the Panel Smooth Transition Regression technique for the 44 economies of the world, considering the sample period from 1961 to 2007. They found that inflation has a nonlinear impact on economic growth in these countries. Moreover, they also found a 19.6% cut-off point beyond which inflation became harmful to economic growth. Similarly, Seleteng et al. (2013) applied Panel Smooth Transition Regression (a robust technique that resolved endogeneity and heterogeneity problems) on the data series from 1980 – 2008 for the Southern African Development Community region. This study found that inflation has a nonlinear impact on economic growth in the Southern African Development Community region. They also found an 18.9% cut-off point, after which inflation turned to be harmful to economic growth in the SADC region.

After reviewing the above studies, we have concluded that all confirmed that inflation has a nonlinear and inverted U-shaped impact on economic growth for the set of developing and developed countries, respectively. Besides reviewing these studies, some studies in the literature state that inflation has a negative and significant impact on economic growth, and now we would like to review these studies.

This study has been initiated from the study conducted by Barro (1996), who taking a sample of around 100 countries and covering sample period from 1960 – 1990, investigated the impact of inflation on economic growth, and he found that inflation had a negative and significant impact on the economic growth of these countries. Moreover, he concluded that a 1% increase in inflation would reduce economic growth by 0.02% to 0.03% each year. In another study, Barro (2001) found that inflation has a negative and significant impact on economic growth after applying pooled data series. The inflation coefficient was found to be -0.03, which shows that as inflation increases by 1%, it will reduce economic growth by 0.03%. Moreover, the study highlighted inflation variability as an indicator of macroeconomic stability. It further found that more inflated countries tend to experience high inflation variability, which deteriorates economic growth into such countries.

Singh and Kalirajan (2003) found that economic growth responds inversely and significantly to the changes in inflation in India. Afterward, we see the contribution of Hodge (2005), who investigated the impact of inflation on economic growth for South Africa for the quarterly data from 1970 to 2003, and he found a negative and significant impact of inflation on economic growth. The inflation coefficient was approximately 0.25, meaning that as inflation increases by 1%, it will curtail the South African economy's growth rate by 0.25%. Furthermore, Hayat and Kalirajan's (2009) study also examined the effects of inflation on economic growth in Bangladesh, and the study found that inflation has a negative and robust impact on economic growth in Bangladesh. The study also proposes that any economy could achieve considerable gains if price stability becomes a priority while conducting monetary policy. Jha and Dang (2011) examined the impact of inflation variability on economic growth for 31 developed and 182 developing countries, whereas the study covers data series from 1961 to 2009. The study's empirical findings concluded that beyond the 10 percent inflation rate, economic growth is inversely hit by inflation variability in these countries.

The relationship between inflation and economic growth has opened up so many questions for us, as we could see from the mixed types of association between the two that have been witnessed in the literature. Some studies have found a linear but positive impact of inflation on economic growth, indicating a positive aggregate supply curve like Lucas (1973). Some studies went beyond finding a linear relationship between inflation and economic growth. These researchers believed a nonlinear relationship between inflation and economic growth prevails. They have found evidence of the inverted U-shaped impact of inflation on economic growth, meaning that inflation up to a certain level is acceptable for accelerating economic growth, but beyond this level, inflation becomes harmful for the economy. These studies are Ghosh and Phillips (1998), Khan and Senhadji (2001), Sepehri and Moshiri (2004), Sweidan (2004), Lee and Wong (2005), Drukker et al. (2005), Pollin and Zhu (2006), Li (2006), Schiavo and Vaona (2007), Kan and Omay (2010), Espinoza et al. (2010), Ibarra and Trupkin

(2011), Mignon and Villavicencio (2011) and Seleteng et al. (2013). Moreover, the literature has also provided evidence on the negative impact of inflation on economic growth. This may be because producers' misperception is cleared when prices are too high, and at that point, an increase in prices is considered an increase in the cost of production (Lucas, 1973). These studies are Barro (1996), Barro (2001), Singh and Kalirajan (2003), Hodge (2005), Hayat and Kalirajan (2009), and Jha and Dang (2011). This study will adopt the following notions from previous models as the effect of inflation depends on the level of development, and the time series models of different countries have found different thresholds. This study is going to be different from all these studies. The first dimension is that previous studies applied transformations or ignored the non-normality of the variables. Second, this study will consider the size of GDP per capita and CPI while assessing the role of CPI on GDP per capita; thus, the effect of CPI will be multidimensional.

3. Economic Theory and Econometric Approach

Prices of goods and services are important decision indicators for all the economic agents; hence changing prices set many other phenomena into motion. This paper will develop from Cobb Douglas Labor and Capital production function (Cobb & Douglas, 1928) and incorporates prices. In the next section, we will examine all the variables included in our study.

3.1 Variables and Description

3.1.1. General Prices (CPI)

Prices and, consequently, inflation are the main focus of this study, bridging the gaps illustrated above. Empirically several studies have proposed mixed results for this Prices-GDP relationship in terms of its specification, i.e., linear, quadratic, or cubic. Hence, with the adoption of production function as a control model, this study will expect to provide the source to the direction of the relationship. From the literature, it can be seen that the effect of inflation is not linear. Considering this assumption, many studies have used the dummy variable threshold method to find one discrete cut-off value beyond which the effect of inflation is the opposite.[1] However, considering the economy comprises industries whose responsiveness to changing prices is heterogeneous, the continuous threshold method suggests general prices are more appropriate, suggesting that the direction shifting is gradual rather than spontaneous. This study has used the Consumer Price Index as an indicator for general prices, while the first difference after the natural logarithm will represent inflation.

3.1.2 Output (GDP per capita)

Maximizing the national output is the foremost objective of any economy, and Bernanke

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[1] Hence prices are expected to have positive impact before the threshold and negative after threshold.

(2011) talk about stabilized prices which assist in healthy growth. This study has used Real GDP per capita from World development indicators as an indicator for output.

3.2 Quantile on Quantile Estimation Approach

Previous studies have used mean as a central tendency approach which requires the data to be normally distributed. However, theoretically, variables like GDP per capita, whose ideal value is not in the center, cannot be normal. Previous studies have used the quadratic transformation or the threshold method to find the nonlinear impact of CPI on GDPpc. Since the variables were not normal in most cases, the estimates are not appropriate for inference. Lastly, this study has used the actual data of GDP per capita constant US$ and CPI (2005 = 100) from the World Development Indicators for 73 countries between 1960 and 2018. Mixed panel data is adapted to ensure maximum possible observations for the analysis.

This study has assessed the advanced version of quantile regression which assesses the effects of different quantiles of the independent variable on the dependent variable (Koenker & Bassett, 1978). A study by Dufrenot, Mignon and Tsangarides (2020) assessed the role of inflation on GDP per capita for developing countries using a quantile regression approach. A study by Gezdim and Zortuk (2018) used panel quantile regression to estimate the U-shaped effect of Inflation on economic growth for transition economies.

This study has availed Quantile on Quantile approach proposed by Sim and Zhou (2015). Studies like (Sharif et al., 2019a, 2019b; Shahbaz et al., 2018; Mishra et al., 2019; Hassan et al., 2021) have used this model in the univariate set up to assess the quantile wise effect of the independent variable on different quantiles of the dependent variable. Atsalakis, Bouri, and Pasiouras (2020) assessed the role of natural disasters on economic growth using a quantile on quantile approach. They excluded the effect of inflation using quantile estimates before estimating QQ regression.

4. Results and Discussion

Following table 1 shows detailed descriptive stats. We can observe that the mean and the median value of the variable are not similar for CPI and GDP per capita. The skewness and kurtosis values are not near 0 and 3, and lastly, the Shapiro Wilk test's significance confirmed that the data is not normal. Hence it is not advisable to use the least square methodology, which uses the arithmetic mean as a center (Gujarati, 2009).

Table 1. Descriptive Statistics

Variable	Obs.	Mean	Median	Std. dev	IQR	Skewness	Kurtosis	SW test	Prob.
CPI	3559	51.97	48.06	42.18	74.07	0.60	0.45	0.924	0.00
GDP	3559	14534	6049	17374	23115.6	1.68	3.46	0.784	0.00

Figure 1 provides the correlation between GDP per capita and CPI for each quintile of GDP per capita. Here we can see a higher association between GDP per capita and CPI for the median level of GDP per capita. Hence, middle-income countries tend to show higher commonalities between GDP per capita and CPI. This high communality might indicate high sensitivity of GDP per capita with changes in CPI.
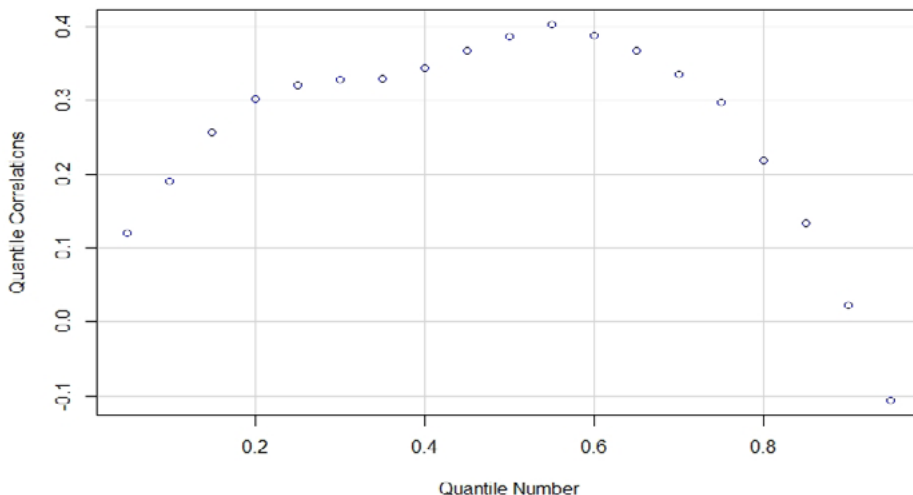

Figure 1. Quantile wise correlation coefficient

Before moving to the quantile plots, we will present GDP per capita and CPI values at different quantile levels. These reference points will help in quantifying the graphical presentations provided via quantile estimates.

Table 2. Quantile-wise incidence of GDPpc and CPI for different samples.

Percen-tiles	GDPpc	CPI	GDPpc	CPI	GDPpc	CPI	GDPpc	CPI	GDPpc	CPI
	Overall		Low HDI		Medium HDI		High HDI		Very High HDI	
0%	304.7	0.00	304.7	0.00	330.989	0.00	585.9	0.00	944.2	0.00
25%	1616.5	11.1	582.1	5.08	1431.8	0.00	3809.1	6.85	20301.6	26.4
50%	6049.3	48.0	1032.5	39.1	2122.4	28.4	5719.1	44.8	29406.2	64.6
75%	24732.1	85.6	1506.8	80.9	3558.7	78.1	8596.7	83.4	40434.5	89.7
100%	111968.3	373.1	14936.4	214.2	19491.8	231.1	32080.3	337.1	111968.3	127.7

Figure 2 presents the 3-dimensional plot of quantile on quantile estimates of CPI on

GDP per capita. The colours show a 19*19 effect matrix for each quintile of CPI on each quintile of GDP per capita. Here we can see that generally, there is a U-shaped association between CPI and GDP per capita for the overall data set. There is a slight positive effect of CPI on GDP per capita at lower quintiles. This effect reduces to a negative value at the median level of CPI, but after that, a further increase in CPI tends to show an increase in the positive effect. Figure 3 provides the contour plot corresponding to figure 2, providing similar outcomes. This indicates that the countries whose CPI value is below the median tend to experience increasing negative effects on economic growth for our sample.

Moreover, these effects are severe for the countries whose GDP is higher than the median. At the same time, countries whose CPI values are above the median are enjoying increasing positive growth effects. Moreover, these positive effects are higher for the median GDP countries.
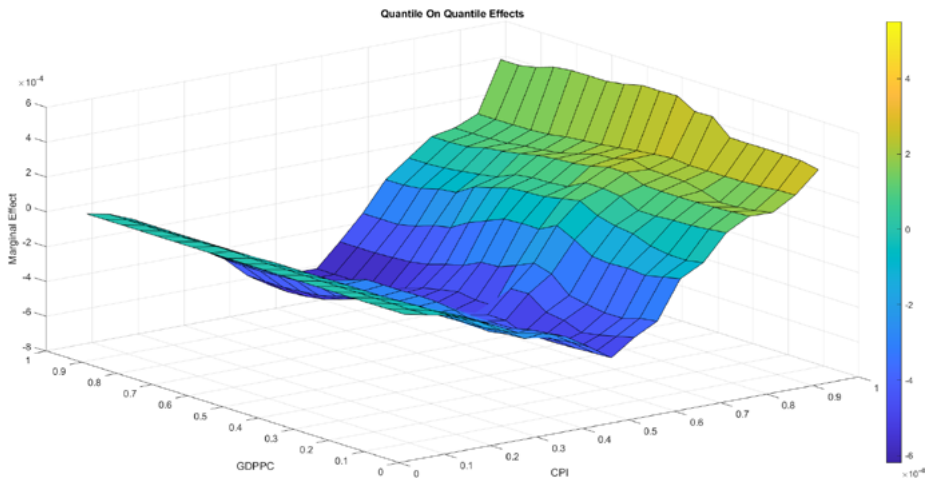

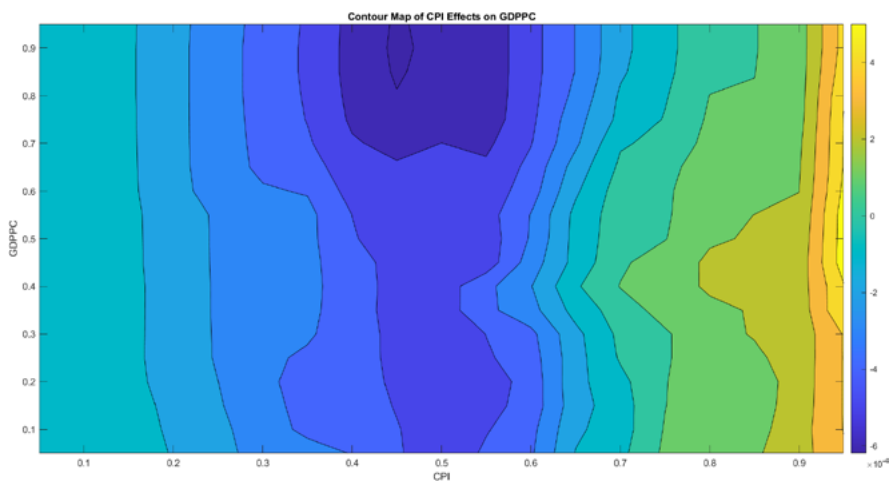**Figure 2.** 3d Quantile on Quantile Effects plot

Figure 3. Contour plot of effects of CPI on GDP per capita for the whole sample

Figure 4 provides the QQ estimates for the case of Low Human Developed Countries. Here, it is evident that an increase in CPI has an inverted U-shaped pattern of effect at low to median levels of GDP per capita. For these countries, low levels of CPI are beneficial for growth. Nevertheless, for these countries, generally, CPI has a positive effect throughout its range. Moreover, at high levels of GDP per capita, there is an inverted U-shaped of effect. This means that at the median level of CPI, there is the highest possible growth deterrent effect.
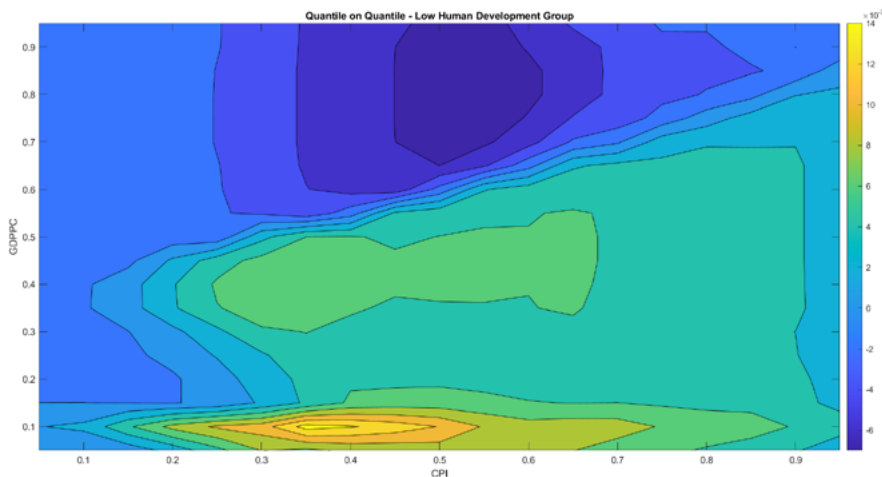

Figure 4. Contour plot of effects of CPI on GDP per capita for low HDI countries

Figure 5 provides the QQ estimates for the case of Medium Human Developed Countries. Here at low levels of GDP per capita, the negative effect of CPI will increase with CPI. For the case of high levels of GDP per capita, there is a positive trend of effect to CPI. Countries in this group with this specific range of GDP per capita tend to enjoy the supply-promoting effects of an increase in CPI. So opting for price stability may be the right option for these countries.
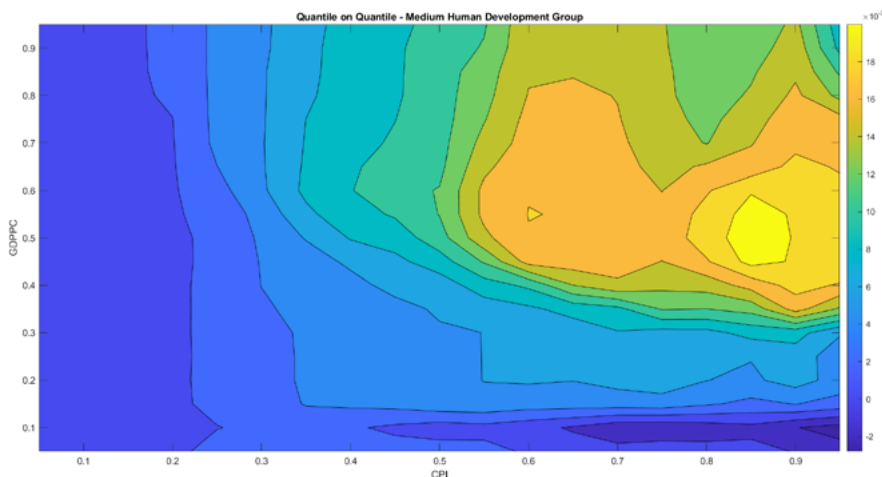

Figure 5. Contour plot of effects of CPI on GDP per capita for medium HDI countries

Figure 6 provides the QQ estimates of High Human Development Countries. There is a decrease in positive effects with an increase in CPI for low levels of GDP per capita. For CPI above the 65 percentile, the negative effects tend to appear. However, at high levels of GDP per capita, there is an increase in positive effect with an increase in CPI. Hence staying above 10 percentile will ensure positive effects, but between the 60 and 80 percentile ensures the highest possible positive effects.
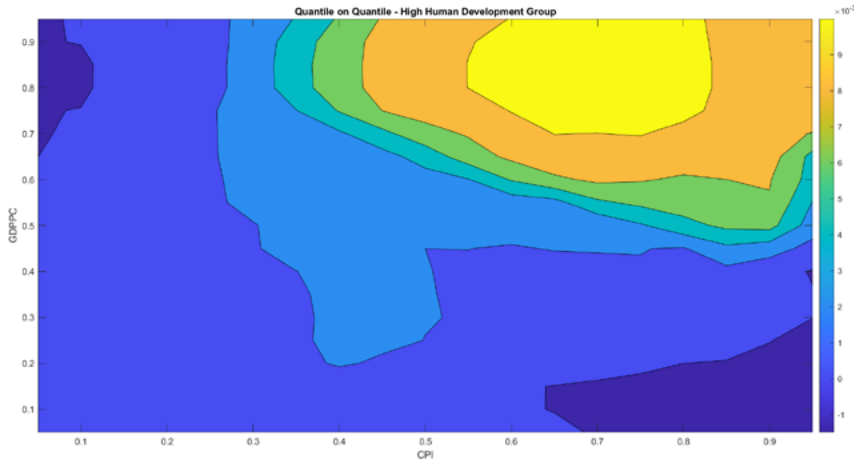

Figure 6. Contour plot of effects of CPI on GDP per capita for high HDI countries

Figure 7 provides the QQ estimates of Very High Human Development Countries. There is a decrease in the positive effect of an increase in CPI for low levels of GDP per capita. However, for all the ranges of CPI, there is no negative effect on GDP per capita. While at high levels of GDP per capita, there is an inverted U-shaped pattern of effects of an increase in CPI. Below 35 percentile increase in CPI shows an increasingly positive effect on GDP per capita while beyond 45% percentile of CPI, there is a slight decreasing trend of the positive effects. Here the median GDP per capita countries tend to enjoy stable/consistent effects of change in CPI.
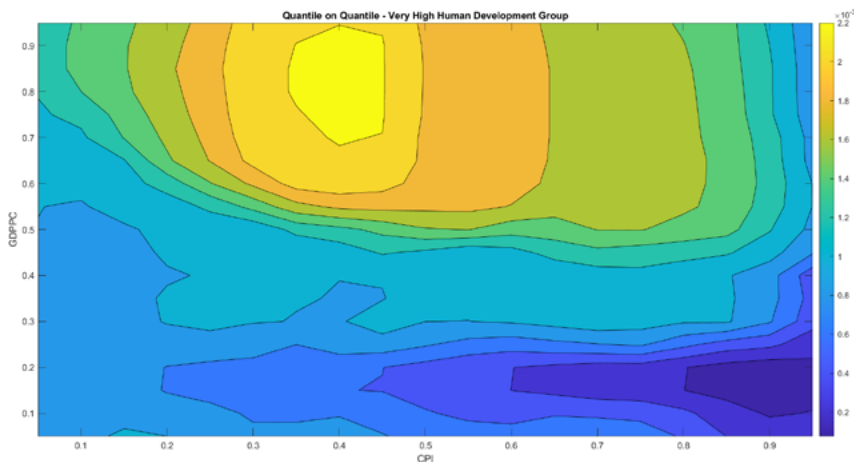

Figure 7. Contour plot of effects of CPI on GDP per capita for very high HDI countries

5. Conclusion and Policy Implications

Many scholars have attempted to explore the nonlinear effect of inflation on economic growth. The general outcome they have consensus is that it is inverted – a U-shaped relationship between inflation and economic growth. Moreover, this relationship is different for different income groups. As suggested by the positive slopped aggregate supply curve theories, this inverted U-shaped relationship signifies that production is motivated at low inflation levels. Beyond a certain threshold, the relationship becomes flexible, so the increase in inflation increases costs only, reducing aggregate demand.

This study has used the quantile-on-quantile estimation approach to cater to the non-normality of the variables and create a map of effects of each quantile of CPI on each quantile of GDP per capita. Figure 2 to 7 provides the graphical representation of 361 effects generated from the vector of 19 quintiles of CPI against 19 quintiles of GDP per capita.
The results show that the nature of the non-linear relationship between CPI and GDP per capita is not only determined by the value of CPI and the category of the country (developed or underdeveloped); this relationship is also sensitive to the level of GDP per capita itself.

This study provides insights to policymakers to ascertain the robustness of GDP per capita against the negative effects of CPI. Very high HDI, high HDI, and medium countries should aim for the higher percentiles of GDP per capita. At the same time, it is complicated for the low HDI countries to aim for median levels of GDP per capita if they cannot climb the HDI category. Policymakers can also identify the favorable growth-promoting targets of CPI. For the case of very high HDI and low HDI, below-median CPI is fruitful. For high HDI and medium HDI, above median CPI is fruitful.

Compliance with Ethical Standards

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Appendix

Table A1. Countries included in sample

Australia	Austria	Azerbaijan	Belgium
Bangladesh	Bulgaria	Bahamas	Belarus
Bolivia	Brazil	Botswana	Canada
China	Cameroon	Costa Rica	Cyprus
Czech Republic	Germany	Denmark	Dominican Republic
Egypt	Spain	Finland	France
Gabon	United Kingdom	Gambia	Switzerland
Greece	Guatemala	Hong Kong	Honduras
Indonesia	India	Ireland	Iran
Israel	Italy	Kazakhstan	Kenya
Korea Rep	Sri Lanka	Luxembourg	Morocco
Mexico	Mauritius	Malaysia	Nigeria
Netherland	New Zealand	Pakistan	Panama
Philippines	Paraguay	Romania	Russia
Senegal	Singapore	Slovenia	Sweden
Swaziland	Togo	Thailand	Turkey
South Africa	Uganda	Uruguay	USA
Vietnam	Tanzania	Yemen	Zimbabwe
Iceland			