FOLUSO A. AKINSOLA*, NICHOLAS M. ODHIAMBO**

Inflation and Economic Growth:
a Review of The International Literature

Abstract

This paper surveys the existing literature on the relationship between inflation and economic growth in developed and developing countries, highlighting the theoretical and empirical indications. The study finds that the impact of inflation on economic growth varies from country to country and over time. The study also finds that the results from these studies depend on country-specific characteristics, the data set used, and the methodology employed. On balance, the study finds overwhelming support in favour of a negative relationship between inflation and growth, especially in developed economies. However, there is still much controversy about the specific threshold level of inflation that is appropriate for growth. Most previous studies on this subject just assume a unidirectional causal relationship between inflation and economic growth. To our knowledge, this may be the first review of its kind to survey, in detail, the existing research on the relationship between inflation and economic growth in developed and developing countries.

Keywords: *inflation, economic growth, developed countries, developing countries*

JEL: *E31, O42, O47*

* Postdoctoral Research fellow in Macroeconomic Policy Analysis, College of Economics and Management Sciences, University of South Africa, e-mail: akinfolu@yahoo.com
** Professor in Macroeconomic Policy Analysis, College of Economics and Management Sciences, University of South Africa, e-mail: nmbaya99@yahoo.com

1. Introduction

The relationship between inflation and economic growth is of great interest in macroeconomics and monetary policy modelling. Although the relationship between the inflation rate and economic growth has been studied extensively, nevertheless the exact relationship is not well defined. Findings concerning the direct relationship are not uniform across the existing literature on the subject. Different studies have focused on different countries and country groups and have employed different proxy variables and methodologies in measuring the relationship between inflation and economic growth. The empirical results and policy recommendations vary and sometimes are in conflict. Previous studies are inconclusive in terms of providing any policy recommendations that can be applied consistently across countries. These differences seem to be a result of different data sets, specific country characteristics, and the different methodologies employed. Although many recent studies assert the school of thought that inflation retards and negatively influences economic growth, earlier studies asserted that inflation promotes growth. Empirical findings on this subject in the existing literature fall into four categories: inflation does not have any influence on economic growth (Wai 1959, Dorrance 1966, Sidrauski 1967, Cameron, Hum & Simpson 1996); inflation has a positive impact on economic growth (Mallik & Chowdhury 2001, Rapach 2003, Benhabib& Spiegel 2009); inflation has a negative influence on economic growth (Friedman 1956, Stockman 1981, Fischer 1983, Barro 1995, Valdovinos 2003); and inflation impacts economic growth in terms of specific thresholds (Aydin et al. 2016, Ghosh & Philips 1998, Bruno & Easterly 1998, Khan, Semlali& Smith 2001, Drukker, Gomis-Porqueras &Hernandez-Verme 2005, Kremer, Bick &Nautz 2009, Vinayagathasan 2013).

This paper aims to review the existing literature on the nexus between inflation and economic growth, highlighting the theoretical and empirical evidence. The remainder of the paper is divided into four sections. Section 2 reviews the theoretical literature on the relationship between inflation and economic growth. Section 3 explicates the empirical literature on the relationship between inflation and economic growth. The conclusions are presented in Section 4.

2. The relationship between inflation and economic growth: a theoretical framework

Inflation can be defined as the continuous increase in the general level of prices of goods and services over time or, more simply, as too much money chasing too few goods. Inflationary periods bring about a continuous decline in the purchasing

power of money. Studies on inflation and growth can be traced as far back as the classical economic theories and up to modern theories. Today the relative importance of inflation in propelling economic growth remains a subject of debate. This paper offers a detailed review of the literature on growth theories concerning the relationship between inflation and economic growth. Most central banks' monetary policies aim to maintain a low inflation rate and high economic growth. Very high inflation affects the economy drastically, but there is some evidence that moderate inflation might also affect output growth in the long run (Temple 2000). Aiyagari (1990) posits that there is no benefit in lowering inflation towards zero.

As propounded by Adam Smith, the classical theory assumes that there are three factors of production: land, labour, and capital. Savings is considered the most important determinant of economic growth. No direct relationship exists between inflation and its tax effect on the profit level and output. The assumption that capitalists compete in the labour market, which leads to an increase in wage costs. Therefore, the relationship between inflation and economic growth is implicitly negative, leading to higher wages and a reduction in a firm's profit level (Gokal & Harfi 2004). Later, the classical economic theory stated that output and employment are determined by the short-run production function of labour and capital, and not by the creation of money, For example,

$$Y = A f (K, L),$$

where Y is output,
A is the level of technology,
K is accumulated capital,
and L is the labour force.

Therefore, economic growth can be attained only if the labour force or capital accumulation rises with the level of technology to prevent diminishing returns of growth induced by an increase in capital or the labour force (Snowdon & Vane 2005). The popular Say's Law, as propounded by Jean Baptiste Say, only regarded money as a medium of exchange. Moreover, the only determinant of economic growth is investment, which is influenced by savings. An increase in savings reduces the interest rate, thereby increasing investment to balance out the reduction in consumption due to higher levels of savings. However, a decrease in savings will increase the interest rate and depress investment, and hence depress economic growth (Baumol 1999).

Another aspect of the classical theory is the quantity theory of money. It states that money does not affect real variables in the long run, but can determine price levels in an economy. Although the relationship between inflation and economic growth is not stated clearly in the classical theory of growth, it is implicitly asserted that there is a negative relationship between the two variables. Boyd and Champ's (2006) analysis starts with the theoretical insight that inflation reduces

the real return on assets. Specifically, it discourages saving and encourages borrowing, which raises the nominal interest rate. A rise in the nominal interest rate, in turn, discourages investment and hence discourages growth.

The conventional view on inflation holds that inflation should not be too high, but should be moderate and stable in order to enhance economic growth. Lucas (1973) posits that inflation should be low in order to propel economic growth by making "prices and wages more flexible". Sidrauski (1967) posits that inflation has no effect on growth because money is neutral. In his paper, money is introduced in the utility function. Tobin (1965) believes that money and capital are perfect substitutes; hence, inflation will have a long-run positive effect on growth. On the other hand, the "cash in advance model" of Stockman (1981) argues that money and capital are complementary. Their paper examined the effect of anticipated inflation on the steady-state capital stock in an economy, where money is introduced through a cash-in-advance constraint rather than through the utility functions of individuals. They assert that there is a negative long-term relationship between growth and inflation. However, the real effect of money will be different if money serves as a transitionary through a "shopping time technology". "Inflation represents a tax on real balances; the real effects of altering that tax depend on what we assume about the role and nature of money" (Dornbusch and Frenkel 1973: 141). Feldstein (1982) believes that the relationship between inflation and the tax system could affect the lending decisions of consumers and, ultimately, affect the cost of capital and dampen investment, leading to a decline in economic growth. Fischer (1993), Barro (1995; 1996), and De Gregorio (1993) found evidence for a negative link between inflation and growth. The most recent inflation-growth theory postulated is the non-linear effect of inflation on growth, which is explained through money demand elasticity (Gillman and Kejak 2005). In the endogenous model, the relationship between inflation and growth is introduced through the marginal product of capital (physical or human).

The literature has tried to answer the question regarding the level at which inflation starts suppressing long-run growth in terms of threshold and sensitivity. Most of the empirical studies have confirmed the negative and non-linear impact of inflation, especially beyond a certain threshold level (Sarel 1996; Ghosh and Philips 1998; Bruno and Easterly 1998; Khan and Senhadji 2001; Gillman and Kejak 2005). The marginal effect of inflation on growth is stronger when the level is at lower rates (Ghosh and Philips 1998) The inflation-growth relationship can also be affected by other macroeconomic variables (e.g., trade openness, and degree of financial development, and public expenditure). For example, Eggoh and Khan (2014) observed that macroeconomic factors like trade openness with an excess demand gap can lower the cyclical movement of inflation and output growth in a competitive economy.

The literature has also reported various inflection points and the fact that country-specific studies on inflation and output are more reliable than panel studies. There is still a great deal of controversy about the specific threshold level of in-

flation that is appropriate for growth. The non-linear relationship is also sensitive to different methodologies, cross control studies (developing and developed countries), and country studies.

3. The empirical literature on inflation and growth

The relationship between inflation and growth has been well analysed, with divergent results. Malla (1997), for example, examined the impact of inflation on growth for 11 OECD and Asian countries using panel analysis. The result showed that for OECD countries there was no relationship between inflation and growth, contrary to theories on inflation and growth. However, for Asian countries, there was a significant negative relationship between inflation and growth. Bruno and Easterly (1998), while using the threshold model for 26 countries, established that a higher inflation rate retards growth and lower inflation costs an economy less. A country is in a high inflation crisis when its inflation is above the threshold level of 40%. The evidence regarding the exact threshold of inflation that is detrimental or beneficial to economic growth is inconclusive, even when the same group of countries is analysed. Khan and Senhadji (2001) analysed the threshold effect of inflation on economic growth for 140 industrialized and developing countries using a non-linear square method. Using the dataset from 1960 to 1998, they predicted an inflation threshold, in terms of achieving the desired rate of growth, of 1 to 3 percent for industrialized countries and 7 to 11 percent for developing countries. In the same year, Gylfason and Herbertsson (2001) analysed 170 industrialized and developing countries from 1960 to 1992 using panel regression. They found that an inflation rate of between 10 and 20 percent had a negative effect on economic growth. Gillman, Harris, and Mátyás (2004) assessed the inflation and growth nexus for a panel of 29 OECD and 18 APEC member countries from 1961 to 1997, using Pearson's cointegration and fixed and random effect methods. They also noticed a negative inflation-growth effect, which was stronger at lower levels of inflation. The negative effect of inflation for the OECD countries is significant, and the results are similar for APEC countries. Mubarik and Riazuddin (2005) examined a threshold analysis for Pakistan and concluded that an inflation rate of above 9% had a negative impact on economic growth. Erbaykal and Okuyan (2008) analysed the relationship between inflation and economic growth for Turkey, using quarterly data from 1987Q1 to 2006Q2. They employed the cointegration and causality test, bounds test, and WALD test. They found that no significant long-term relationship existed between inflation and growth, but a negative significant relationship did exist between the two variables in the short term. They also found a unidirectional causal relationship flowing from inflation to economic growth. Munir and Mansur (2009), using a dataset from 1970 to 2005 and the endogenous threshold au-

toregressive (TAR) model, found that an inflation rate of above 3.89% had a negative impact on economic growth, while an inflation rate below this threshold had a positive impact on growth. Ozdemir (2010) examined the dynamic linkages between inflation uncertainty, inflation, and output growth for the UK, also using quarterly data from 1957Q2 to 2006Q4. The vector auto-regressive fractionally integrated moving average (VARFIMA) was performed to examine the causal effect between inflation and growth. The author divided the sample data into three sub-periods and analysed the whole sample and sub-period sample data. The result for the whole sample revealed that inflation uncertainty determines economic growth. In addition, output growth uncertainty has a positive impact on the inflation rate and output growth rate, but no relationship was found for the sub-period analysis. Therefore, inflation uncertainty is one of the most crucial determinants of economic growth. Odhiambo (2011) also examined the causal relationship between inflation, investment, and economic growth in Tanzania. He found a unidirectional causal flow from inflation to economic growth.

Abbott and De Vita (2011) investigated the impact of inflation on growth under different exchange rate regimes for 125 countries from 1980 to 2004. They employed panel analysis and found that developing countries that adopted flexible exchange rate regimes experienced lower growth than those countries that adopted fixed or intermediate exchange rates. Akgul and Ozedemir (2012) assessed the non-linear relationship between inflation and growth for Turkey. They found that an inflation threshold of 1.26% is appropriate for economic growth. An inflation rate of above 1.26% had a negative impact on growth, while a rate below 1.26% had a positive impact on growth. Kremer et al. (2013) carried out another study for 124 industrialized and non-industrialized economies using the dynamic panel threshold model. They found a threshold of 2 percent for industrialized countries and 17% for non-industrialized countries; any rate above this level was detrimental. In the same year, Vinayagathasan (2013) analysed 32 Asian countries using the same methodology of dynamic threshold analysis, and a threshold of 5.43% was determined. A rate above the threshold had a negative impact on growth, while a rate below the threshold had no significant effect on growth. Tung and Thanh (2015), using a two-stage least squares methodology for Vietnam data from 1986 to 2013, found that an inflation rate of above 7% had a negative impact on economic growth. A very recent study conducted by Baharumshaha et al. (2016) on inflation, inflation uncertainty, and economic growth in 94 emerging and developing countries employed the system generalized method of moments (SGMM). The study found that inflation harms growth only in non-inflation crisis countries, and inflation uncertainty indeed promotes growth. High inflation promotes negative growth, and a low inflation rate promotes high growth. The negative cost of not keeping inflation in check outweighs the positive benefit from uncertainty in non-inflation crisis countries in all three regimes. They also found that inflation uncertainty has a positive effect on growth through a precautionary motive when inflation reaches moderate ranges (5.6–15.9%). Table 1 presents a summary of some of the previous studies on the relationship between inflation and economic growth.

Table 1. Summary of Literature on Inflation and Economic growth

S/N	Study	Purpose	Year Covered	Estimation Method	Variables	Summary of Findings
1	Khan and Senhadji (2001)	Threshold effect in inflation and economic growth for 140 industrialized and developing countries	1960 to1998	Non-linear least square method (NLLS)	Growth rate of GDP, CPI index, gross domestic investment, population growth, terms of trade	An inflation rate threshold of 1 to 3 percent was posited for industrialized countries and 7 to 11 percent for developing countries. Percentages higher than the abovementioned had a negative impact on economic growth and below the abovementioned, percentages had no impact on economic growth.
2	Gylfason and Herbertsson (2001)	Threshold effect in inflation and economic growth for 170 industrialized and developing countries	1960 to 1992	Panel regression	GDP growth, GDP per capita, inflation (GDP deflator), openness, gross domestic fixed investment, primary exports, secondary education	An inflation rate of between 10 and 20 percent had a negative effect on economic growth.
3	Mubarik and Riazuddin (2005)	Examined the inflation and growth nexus for Pakistan	1973 to 2000	Threshold analysis	Real GDP, population growth, CPI, investment growth rate	An inflation rate of above 9% had a negative impact on economic growth.
4	Munir and Mansur (2009)	Examined the inflation and growth nexus for Malaysia	1970 to 2005	Endogenous threshold autoregressive (TAR) model	Real GDP growth, gross fixed investment, FDI, growth rate of export of goods and services	An inflation rate of above 3.89% had a negative impact on economic growth; however, an inflation rate below this had a positive impact on growth.

S/N	Study	Purpose	Year Covered	Estimation Method	Variables	Summary of Findings
5	Hasanov (2011)	Examined the inflation and growth nexus for Azerbaijan (as a transition economy)	2000 to 2009	Threshold model	Real GDP per capita, CPI, gross fixed capital formation	A 13% inflation rate threshold was found. An inflation rate above this threshold had a negative impact on growth, while a rate below this threshold had a positive effect on economic growth.
6	Kremer et al. (2013)	Examined the inflation threshold and growth nexus for 124 industrialized and non-industrialized economies	1950 to 2004	Dynamic panel threshold model	GDP per capita, inflation (GDP deflator), trade openness, terms of trade	An inflation rate of 2% and 17% was posited for industrialized and non-industrialized countries, respectively. Any rate over this threshold had a negative effect on growth and below this threshold had no significant effect on economic growth.
7	Akgul and Ozdemir (2012).	Assessed the non-linear relationship between inflation and growth for Turkey	Monthly data from 2003 to 2009	Two-regime TAR model	GDP per capita, inflation (GDP deflator), trade openness, terms of trade	An inflation threshold of 1.26% was determined. An inflation rate above this had a negative impact on growth, while a rate below this had a positive impact on growth.
8	Tung and Thanh (2015)	Examined the inflation threshold and growth nexus for Vietnam (as a transition economy)	1986 to 2013	Two-stage least square(2-SLS) and generalized method of moments (GMM)	GDP per capita, CPI, trade openness, terms of trade, gross domestic investment, population growth, dummy variable if inflation is higher than the threshold percentage	An inflation rate of above 7% had a negative impact on economic growth.

S/N	Study	Purpose	Year Covered	Estimation Method	Variables	Summary of Findings
9	Vinayagathasan (2013)	Examined the inflation and growth nexus for 32 Asian economies	1980 to 2009	Dynamic panel threshold model	GDP per capita, GDP growth rate, inflation (CPI), trade openness, terms of trade, population growth rate, investment ratio	A threshold of 5.43% was determined. A rate above the threshold had a negative impact on growth, while a rate below this threshold had no significant effect on growth.
10	Barro (1995)	Investigated the inflation and growth nexus for 100 countries	1960 to 1990 panel data	Neo classical growth model	Inflation as an explanatory variable and other determinants of growth are kept constant	Inflation had a negative, significant effect on growth and investment.
11	Bruno and Easterly (1998)	Investigated the impact of inflation on long-term growth for 26 countries	1961 to 1992	Threshold model	Inflation rate, GDP per capital growth per worker, investment per GDP	A higher inflation rate retards growth, and lower inflation costs an economy less. A country is in a high inflation crisis when its inflation is above the threshold level of 40%.
12	Abbott and De Vita (2011)	Investigated the impact of inflation on growth under different exchange rate regimes for 125 countries	1980 to 2004	Panel analysis	GDP, inflation, fixed exchange rate, investment, intermediate exchange rate, hyperinflation and civil unrest (measured as dummy variables)	Developing countries that adopted flexible exchange rate regimes experienced lower growth than countries that adopted fixed or intermediate exchange rates.
13	Malla (1997)	Investigated the impact of inflation on growth for 11 OECD and Asian countries		Panel analysis	GDP per capita, GDP growth rate, inflation (CPI), trade openness, terms of trade, population growth rate	For OECD countries, there was no relationship between inflation and growth, contrary to theories on inflation and growth. For Asian countries, there was a significant negative relationship between inflation and growth.

S/N	Study	Purpose	Year Covered	Estimation Method	Variables	Summary of Findings
14	Dotsey and Sarte (2000)	Analysed inflation uncertainty and growth in a cash-in-advance economy		Theoretical framework		Higher average inflation had a negative impact on steady state growth in the neo-classical growth model, due to the higher cost of transactions in higher inflation. However, inflation had a positive impact in the short term, through precautionary savings.
15	Ozdemir (2010)	Investigated the dynamic linkages between inflation uncertainty, inflation and output growth for UK	Quarterly data 1957Q2–2006Q4	Vector auto-regressive fractionally integrated moving average (VARFIMA)	GDP growth, CPI rate	The result for the whole sample revealed that inflation uncertainty had a positive impact on the inflation rate and growth, but no relationship was found for the sub-period analysis. Therefore, inflation uncertainty is one of the most crucial determinants of economic growth.
16	Gillman and Harris (2010)	Analysed the effect of inflation on economic growth for 13 countries under transition	1990 to 2003	Maximum likelihood estimation technique	3 equations: growth, inflation, and money demand equations	There was a strong negative relationship between inflation and growth. The authors recommended inflation targeting to be the main focal point of monetary policies, coupled with fiscal policies to keep budget deficits at bay.

S/N	Study	Purpose	Year Covered	Estimation Method	Variables	Summary of Findings
17	Boyd and Champ (2006)	Theories on inflation, banking, and economic growth	Averaging data for time periods in 1980s and 1990s to capture the long-term effect	Theoretical framework		High inflation reduces bank lending and return on real assets through real interest rates. Inflation has a negative effect on growth; therefore, policy makers should observe the critical point at which inflation becomes deleterious.
18	Erbaykal and Okuyan (2008)	Analysed the relationship between inflation and economic growth for Turkey	Quarterly data from 1987Q1–2006Q2	Cointegration and causality test, Bounds test and WALD test	Real GDP, CPI	No significant long-term relationship existed between inflation and growth, but a negatively significant relationship in the short term was found between the two variables. They also found a unidirectional causal relationship flowing from inflation to economic growth.

S/N	Study	Purpose	Year Covered	Estimation Method	Variables	Summary of Findings
19	Baharumshah et al. (2016)	Inflation, inflation uncertainty, and economic growth in 94 emerging and developing countries	1976 to 2010 (divided into 7 non-overlapping periods)	The system generalized method of moments (SGMM)	Real GDP per capita, inflation rate, inflation uncertainty (calculated as the standard deviation of inflation over a five-year period)	Firstly, the study found that inflation harms growth only in non-inflation crisis countries, and inflation uncertainty indeed promotes growth. High inflation promotes negative growth and low inflation promotes high growth. Secondly, the negative cost of not keeping inflation in check outweighs the positive benefit that derives from uncertainty in non-inflation crisis countries in all three regimes. Thirdly, there is a positive effect of inflation uncertainty on growth through a precautionary motive when inflation reaches moderate ranges (5.6–15.9%).
20	Gillman et al. (2004)	Inflation and growth: Some theory and evidence of panel of OECD and APEC member countries	1961 to 1997	Cointegration, fixed and random effect	GDP at constant prices, annual rate of inflation, ratio of gross domestic investment to GDP	There is a negative inflation-growth effect, which is stronger at lower levels of inflation. The negative effect of inflation for the OECD countries was significant. The results were similar for APEC countries.

Source: Author's Computation from various empirical literatures.

4. Conclusions

The aim of this study was to review the existing literature on the relationship between inflation and economic growth, highlighting both the theoretical framework and empirical evidence. This review is different from other reviews in that it critically evaluates the impact of inflation on economic growth in developed and developing countries. To our knowledge, this may be the first review of its kind to survey the existing research in detail on the dynamic relationship between inflation and economic growth in both developed and developing countries. The findings from the studies reviewed in this paper show that the impact of inflation on economic growth varies from country to country and over time. The study also found that the results from these studies depend on country-specific characteristics, the data set used, and the methodology employed. On balance, the study found overwhelming support in favour of a negative relationship between inflation and growth, especially in developed economies. However, there is still a great deal of controversy about the specific threshold level of inflation that is appropriate for growth.

References

Abbott A. & De Vita G. (2011), *Revisiting the relationship between inflation and growth: A note on the role of exchange rate regimes*, 'Economic Issues', 16(1), 37.

Aiyagari S.R. (1990), *Deflating the case for zero inflation*, 'Quarterly Review', Federal Reserve Bank of Minneapolis, 14, 2–11.

Akgul I . & Ozdemir S. (2012), *Inflation threshold and the effects on economic growth*, 'Iktisat Isletme ve Finans', 27(313), 85–106.

Aydın C., Esen Ö., & Bayrak M. (2016), *Inflation and Economic Growth: A Dynamic Panel Threshold Analysis for Turkish Republics in Transition Process*, 'Procedia-Social and Behavioral Sciences', 229, 196–205.

Baharumshah A.Z., Slesman L., & Wohar M.E. (2016), *Inflation, inflation uncertainty, and economic growth in emerging and developing countries: Panel data evidence*, 'Economic Systems', 40(4), 638–657.

Barro R.J. (1995), *Inflation and economic growth* (No. w5326). National bureau of economic research.

Barro R. J. (1996). *Inflation and growth*, 'Federal Reserve Bank of St. Louis Review', 78, 153–169.

Baumol W.J. (1999), *Retrospectives: Say's Law*, 'The Journal of Economic Perspectives', 13(1), 195–204.

Benhabib J. & Spiegel M.M. (2009), *Moderate inflation and the deflation–depression link*, 'Journal of Money, Credit and Banking' 41(4), 787–798.

Boyd J.H. & Champ B.A. (2006), *Inflation, banking, and economic growth*, 'Economic Commentary', (May).

Bruno M. & Easterly W. (1998), *Inflation crises and long-run growth*, 'Journal of Monetary Economics*', 41(1), 3–26.

Cameron N., Hum D. & Simpson W. (1996), S*tylized facts and stylized illusions: Inflation and productivity revisited*, 'Canadian Journal of Economics*', 29, 152–162.

De Gregorio J. (1992), *The effect of inflation on economic growth*, 'European Economic Review', 36, 417–424.

De Gregorio J. (1993), *Inflation, taxation, and long-run growth*, 'Journal of Monetary Economics*', 31(3), 271–298.

Dornbusch R. & Frenkel J.A. (1973), *Inflation and growth: alternative approaches*, 'Journal of Money, Credit and Banking*', 5(1), 141–156.

Dorrance S. (1963), *The effect of inflation on economic development*. IMF Staff Papers.10 1–47. Washington, DC: International Monetary Fund.

Dotsey M. & Sarte P.D. (2000), *Inflation uncertainty and growth in a cash-in-advance economy*, 'Journal of Monetary Economics*', 45(3), 631–655.

Drukker D., Gomis-Porqueras P. & Hernandez-Verme P. (2005), *Threshold effects in the relationship between inflation and growth: A new panel-data approach*. MPRA Working Paper No. 38225 München: Munich Personal RePEc Archive.

Eggoh J.C. & Khan M. (2014), *On the nonlinear relationship between inflation and economic growth*, 'Research in Economics*', 68(2), 133–143.

Erbaykal E. & Okuyan H.A. (2008), *Does inflation depress economic growth? Evidence from Turkey*, 'International Journal of Finance and Economics*', Vol. 13, No. 17, 2008. Available at SSRN: https://ssrn.com/abstract=1288783

Feldstein M. (1982*), Inflation, tax rules and the accumulation of residential and nonresidential capital*, 'The Scandinavian Journal of Economics*', 293–311.

Fischer S. (1993), T*he role of macroeconomic factors in growth*, 'Journal of Monetary Economics', 32, 485–512.

Friedman M. (1956), *The quantity theory of money: A restatement*. [in:] M. Friedman (Ed.), *Studies in the quantity theory of money* (pp. 3–21). Chicago: University of Chicago Press.

Ghosh A. & Phillips S. (1998), *Warning: Inflation may be harmful to your growth*. 'IMF Staff Papers', 45 672–710. Washington, DC: International Monetary Fund.

Gillman M. & Harris M.N. (2010), *The effect of inflation on growth*, 'Economics of Transition*', 18(4), 697–714.

Gillman M. & Kejak M. (2005), *Contrasting models of the effect of inflation on growth*, 'Journal of Economic Surveys*', 19(1), 113–136.

Gillman M., Harris M.N. & Mátyás L. (2004), *Inflation and growth: Explaining a negative effect,* 'Empirical economics', 29(1), 149–167.

Gokal V . and Hanif S. (2004). *Relationship between Inflation and Economic Growth in Fiji*, Working Paper 2004/04.

Gylfason T. & Herbertsson T.T. (2001*), Does inflation matter for growth?*, 'Japan and the world economy*', *13*(4), 405–428.

Khan M.S. & Senhadji A.S. (2001), *Threshold effects in the relationship between inflation and growth*, 'IMF Staff papers', 48(1), 1–21.

Kremer S., Bick A. &Nautz D. (2013), *Inflation and growth: new evidence from a dynamic panel threshold analysis*, 'Empirical Economics', 1–18.

Kremer S., Bick A. & Nautz D. (2009), *Inflation and growth: New evidence from a dynamic panel threshold analysis*, SFP 649 Discussion Paper No. 036. Zuberlin: Humboldt-Universität.

Lucas R.E. (1973), *Some international evidence on output-inflation tradeoffs*, 'The American Economic Review', 63(3), 326–334.

Malla S. (1997), *Inflation and economic growth: Evidence from a growth equation*, Department of Economics, University of Hawaiâ I at Monoa, Honoulu, USA.

Mallik G. & Chowdhury R.M. (2001), *Inflation and economic growth: Evidence from South Asian countries*, 'Asian Pacific Development Journal', 8, 123–135.

Mubarik Y.A. & Riazuddin R. (2005), *Inflation and growth: An estimate of the threshold level of inflation in Pakistan*, State Bank of Pakistan.

Munir Q. & Mansur K. (2009), *Non-linearity between inflation rate and GDP growth in Malaysia*, 'Economics bulletin', 29(3), 1555–1569.

Odhiambo N.M. (2012), *Inflation dynamics and economic growth in Tanzania: a multivariate time series model*, 'Journal of Applied Business Research (JABR)', 28(3), 317–324.

Ozdemir Z.A. (2010), *Dynamics of inflation, output growth, and their uncertainty in the UK: an empirical analysis*, 'The Manchester School', 78(6), 511–537.

Rapach D.E. (2003), *International evidence on the long-run impact of inflation*, 'Journal of Money, Credit, and Banking', 35(1), 23–48.

Sarel M. (1996), *Nonlinear effects of inflation on economic growth*, 'Staff Papers', 43(1), 199–215.

Sidrauski M. (1967), *Rational choice and patterns of growth in a monetary economy*, 'American Economic Review', 57, 534–544.

Snowdon B. & Vane H.R. (2005), *Modern macroeconomics: its origins, development and current state*, Edward Elgar Publishing.

Stockman A.C. (1981), *Anticipated inflation and the capital stock in a cash-in-advance economy*, 'Journal of Monetary Economics', 8, 387–393.

Temple J. (2000), *Inflation and growth: Stories short and tall,* 'Journal of Economic Surveys', 14, 395–426.

Tobin J. (1965), *Money and economic growth*, 'Econometrica: Journal of the Econometric Society', 671–684.

Tung L.T. & Thanh P.T. (2015), *Threshold in the Relationship between Inflation and Economic Growth: Empirical Evidence in Vietnam*, 'Asian Social Science', 11(10), 105.

Valdovinos C.G.F. (2003), *Inflation and economic growth in the long run*, 'Economics Letters', 80(2), 167–173.

Vinayagathasan T. (2013), *Inflation and economic growth: A dynamic panel threshold analysis for Asian economies*, 'Journal of Asian Economics', 26, 31–41.

Wai U.T. (1959), *The relation between inflation and economic development: a statistical inductive study*, 'Staff Papers (International Monetary Fund)', 7(2), 302–317.

Streszczenie

INFLACJA A WZROST GOSPODARCZY:
PRZEGLĄD LITERATURY MIĘDZYNARODOWEJ

Artykuł stanowi przegląd istniejącej literaturę dotyczącej zależności między inflacją a wzrostem gospodarczym w krajach rozwiniętych i rozwijających się, z uwzględnieniem zarówno aspektów teoretycznych jak i empirycznych. W wyniku przeprowadzonego badania stwierdzono, że wpływ inflacji na wzrost gospodarczy jest zróżnicowany w różnych państwach i w czasie. Opracowanie wskazuje również, że wyniki tych badań są zależne od specyfiki danego kraju, wykorzystanego zestawu danych i zastosowanej metodologii. Generalnie badania wskazują na występowanie zdecydowanie negatywnego związku między inflacją a wzrostem gospodarczym, zwłaszcza w krajach rozwiniętych. Nadal jednak istnieje wiele kontrowersji na temat konkretnego progu poziomu inflacji, który jest korzystny z punktu widzenia wzrostu. Większość wcześniejszych badań nad tym tematem zakłada jedynie jednokierunkowy związek przyczynowy między inflacją a wzrostem gospodarczym. Niniejsze opracowanie jest być może pierwszą próbą dokonania szczegółowego przeglądu istniejących badań nad zależnościami między inflacją a wzrostem gospodarczym w krajach rozwiniętych i rozwijających się.

Słowa kluczowe: *inflacja, wzrost gospodarczy, kraje rozwinięte, kraje rozwijające się*