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Original Article

Interest Rate and Economic Growth: The Transmission Mechanism

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Abstract

In this paper I will be examining how interest rates can impact economic growth. International economic practices and theoretical concepts in the various countries has been discussed. Elasticities of demand may mitigate the effects of high nominal and real interest rates on economic growth, provided that there are mechanisms like low inflation expectations, foreign investors' love for the economy, technological transfer effect and build-up of domestic saving. By using panel data for different countries all over the World, the effectiveness of the interest rate transmission into economic growth has been examined in this paper.

Keywords: *Monetary policy, inflation, inflation expectations, real interest rate, economic growth*
JEL Classification: *E20, E31, E52, E58, G15*

Introduction

A long-standing point of interest and importance to macroeconomists and policy makers was the linkages and interrelationships among the various macroeconomic variables. Not only does it add new theories to the economic literature, but most importantly sets a solid ground of any macroeconomic policy. The effect of fluctuation in the rates of interest on economic development is a well-known and popular theory of macro economics. Among new macroeconomic theories, IS-LM model popularly analyses the relationship. As rate of interest is the cost of investment, it argues that when this cost falls investment will be induced to rise. Following Keynesian school of thought, there will be a demand led growth in the economy. But what this theory misses here is that, whether there is a requirement for the investment to be demand led. It means this theory only analyses investment from supply side – with the cost of investment. However, the demand side – the variation in the demand for the good that he is supplying using that investment – may lure the investors into the economy. Thus, an ambiguity is created in the movement of investment and consequently the economic growth. In most countries, Central Banks employ interest rate policy as a tool to control inflation and economic growth. By adjusting the interest rate, they can control the money supply, and therefore have an impact on the level of inflation, and in consequence, the level of economic growth. Central banks typically strive to maintain low and stable inflation rates, as this helps to foster an environment conducive to investment and growth.The interest rate is also very important for the exchange rate. If the interest rate in one country is higher than another, it can cause an appreciation of the currency of the country with the higher interest rate. This appreciation can lead to a decrease in exports, and a decrease in economic growth.

While the relationship between interest rates and economic growth can be complicated, it is important to note that interest rates can have a significant impact on the economy. Interest rates have direct impact on economic growth through their effect on borrowing and investment and indirect impact through their effect on rate of inflation and exchange rate. The economic growth of a nation is greatly influenced by the action of the Central Banks in determining the interest rate policies. In this context the objective of this paper is to find out the relationship between interest rate and economic growth throughout the World as revealed by the World Bank data of 2025. Data regarding the effects of Interest rate on the economy.

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Literature on impact of Interest rate

Theories vary greatly as to whether interest rates have a positive or negative impact on growth and in which direction. Many approaches to analyze the investment channel show that the relationship between interest rates and output is negative. For instance, Tobin's monetary growth model (Tobin, 1965) implies that an increase in the real return on money as an alternative asset to capital decreases the demand for capital in the medium term, but does not comment on the short term period. Monetary authorities can influence the demand/supply of money or other alternative investments, which in turn will shift the yield on money, and thus the investable premium (which James Tobin originally coined). Another theory, also known as Tobin's q (Tobin, 1969), shows that stock prices rise as a result of a deposit rate cut, boosting, according to the model, investment and hence output. Like Neo-Keynesian models (Wickens, 2008), the neo-classical theory of investment (Haavelmo, 1960 and Jorgenson, 1963) posits that the negative relationship between interest rates and output is accounted for by the real interest rate negative effect on firms' cost of capital. The real business cycle theory (Kydland & Prescott 1982; Hansen 1985 and King & Watson 1995) as well as cash payment models (Fuerst 1992 and Alvarez et al. 2002) show that interest rate growth as a result of technology shock leads to a fall in labor supply and thus adversely affects output. Equilibrium theories of the business cycle (such as Lucas, 1975, Tobin & Brainard, 1977 and Fischer, 1979) suggest that when people think inflation will increase, the real interest rate will fall, and investment will fall due to a shift in the investment portfolio, also reducing output. According to some of the models, the effect of the interest rate is mixed with respect to output. The theory of irreversible investment (Arrow, 1968; Bertola & Caballero, 1994) suggests that, on the one hand, an increase in the interest rate would negatively affect output due to the increase in the cost of borrowing, while, on the other hand, the increase in the interest rate would positively affect output because of the increase in investment spending in the current period, which would be expected to see further increases in the cost of delaying the investment decision.

In addition, open economy models (Wickens, 2008) discover the mechanisms by which the interest rate can affect output; in particular, an interest rate growth leads to local currency appreciation which on the one hand boosts import volumes for intermediate products (materials and means of production, i.e., capital investment) and output, while on the other hand it is a factor that deteriorates the competitiveness of locally manufactured products and, therefore, of net exports and output (the consumption channel). The open economy models thus prove that the interest rate has neither positive nor negative effect on economic growth but it has a mixed effect. When analyzing the consumer channel, a special emphasis is given to the intertemporal consumer choice, in which case the ratio of net creditors to net borrowers in the economy is the key for tracing the direction in which interest rates affect output. Both neo-classical growth models (Acemoglu, 2008) and Neo-Keynesian models (Wickens, 2008) explain that positive relationship would be observed between the interest rate and output if the economy is dominated by creditors because an interest rate rise would boost their revenues and, therefore, consumption and output, whereas the relationship would be negative if the economy is dominated by borrowers whose revenues would decline as a result of an interest rate rise. Secondly, using the McKinnon-Shaw approach (McKinnon, 1973; Shaw, 1973), the effect of financial liberalization on the short- and mid-term level of economic growth is positive. Financial liberalization is to continue raising interest rates until they are brought to equilibrium interest rates, which are suitable for a free market. Financial liberalization comes after a period of financial repression, when interest rates are maintained at an artificially low equilibrium level, thus having an adverse effect on the accumulation of savings and on setting the stage for further investment. Moreover, the "neo-structuralist" approach (Lin, 2011) forecasts a "stagflation", which refers to increasing inflation and decreasing economic growth in the short term brought about by the policy of financial liberalization. In the medium term the saving rate could become large enough to compensate for the impact of asset portfolio adjustments. The neo-structuralists, in general, have found that the impact of income proves to be more powerful than the impact of savings and they foretell a negative impact of real interest rates on economic growth. Note that the concepts above consider the real interest rate as endogenous, that is, the real interest rate changes as a function of shocks on the nominal or real variables of the model and of their propagation to other variables of the economic system. The solution of the macroeconomic problem of a profit maximizing firm shows that the real interest rate is equal to the marginal product of capital when it is in conditions of optimality. Generalizing this to the real economy in general, and in particular to dynamic stochastic general equilibrium (DSGE) models, one could say that the level of real interest rates could be high in countries with high marginal product of capital, but only in (developing) countries where the level of capital stock is low, as the law of diminishing marginal product suggests. The premise of real interest rate exogeneity can be usefully applied only when it comes to certain components (sectors) of the aforementioned models. In particular, the process of fixed capital formation in complex dynamic general equilibrium models is most often presented by the theory of irreversible investment according to which the real interest rate is exogenous, which leads to the conclusion that interest rates can affect economic growth rates. Households' behaviour in the models described in the foregoing is generally characterized from the point of view of the life cycle theory and the permanent income hypothesis, both of which make the same assumption that the real rate of return on accumulated wealth is exogenous. The following premises can be drawn from these premises: interest rates (yield) have a unidirectional impact on economic growth. So all the paths by which interest rates affect the real economy can be boiled down to the "investment channel" or the "consumption channel. So among the existing theoretical approaches show that real interest rates are negatively related to economic

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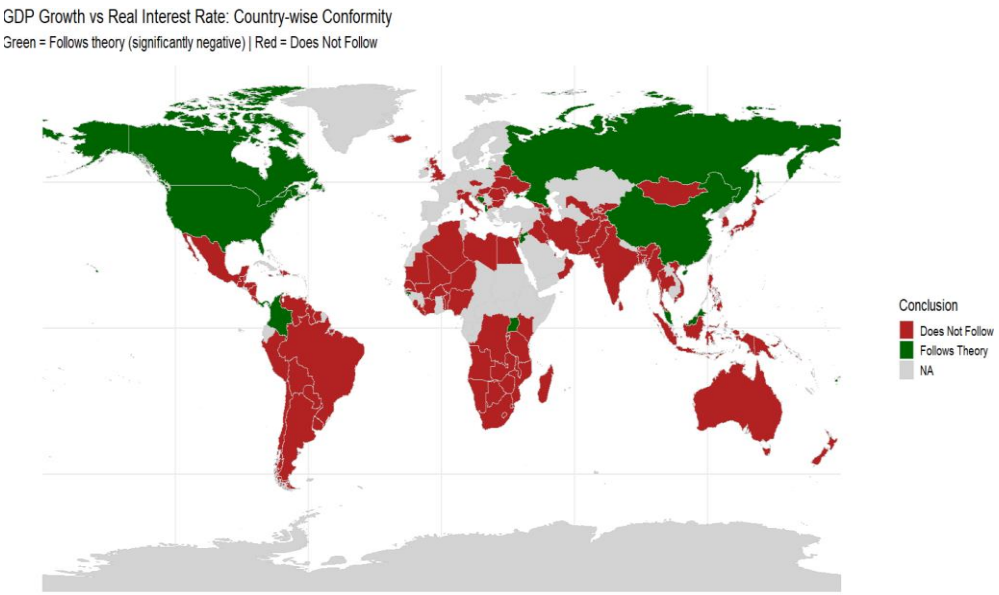
growth, whereas a series of approaches reveal that real interest rates have a positive effect on economic growth rates. Note that these approaches are based on fairly strong assumptions. For instance, the theory of irreversible investment implies that agents are expecting interest rates to rise further and the neo-Keynesian models suggest that the economy needs more household units to be creditors. Hence, the literature indicates that there is both positive and negative relationship between the interest rates and the economic growth rates, depending on the assumptions of specific models.

Result and Discussion

The experience of a number of countries, especially Brazil, India and African countries, indicates that high real interest rates are not an impediment to economic growth. Based on the macroeconomic analysis of the above mentioned countries, it can be concluded that in the economy the following mechanisms must be present, and the economic growth rates can be medium and long term, even with high interest rates. First, the rise in interest rates helped lower the inflation rate and the volatility of inflation, relevant to the Brazilian economy which experienced severe foreign-exchange and/or banking crises prior to having high periods of economic growth. Second, the high interest rates rendered these economies more attractive to foreign capital and thus, foreign portfolio investments were drawn to them, thereby making the import of raw materials for production cheaper as compared to the previous years.Third, high interest rates induced households to build up their stock of savings; this led to the development of more fixed investment in the economy, and, in the classical economic growth models, to the recognition that the initial level of fixed capital was too low in the economy. The fourth and the last mechanism was most pronounced in India, where they were having long spells of high economic growth, funded by the buildup of domestic saving. That the appreciation of the Brazilian real due to the high interest rates in the country reduced the cost of technology imports had a positive effect on the growth rates of the Brazilian economy. However, in several developed countries such as USA, Canada, Russia the inward flow of FIIs does not make any significant economic contribution. Also already high private savings can't be induced further by the rising interest rate. Again the demand side bottleneck does not exist in the developed countries unlike their developing counterparts. So for them the opposite of the above holds true: The greater economic growth, the lower the rate of interest. The World map is presented below, using the World Bank data, for showing the relation between real interest rate and GDP growth in the various parts of the world during 2010-2025:



The global choropleth map shown above represents the degree of consistency between actual and theoretical (macro) expectations on the relationship between real interest rates and GDP growth. Countries shaded in green have a statistically significant negative relationship, meaning that investment slowdowns or consumption suppression may occur as interest rates increase in these countries as predicted by classical monetary transmission theory. This consists of multiple developing and developed economies, where the credit market is interest-rate-sensitive. The rest of the countries, however, are shaded in red, indicating either a negative or unexpected positive relationship. This discrepancy can be due to structural rigidities, capital inflows or monetary policy credibility differences. Interestingly, there are some economies still growing despite the increase in interest rates, perhaps reflecting their supply side strength, or counter-cyclical fiscal buffers. The dispersion around the world shows little generalizability in the relationship between interest rates and growth, and the need for country-specific policy frameworks.

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Conclusion

The effect of interest rates on economic growth appear to be mixed and can be transmitted through a host of channels which are reduced to households' decisions on how much to consume and to firms' decisions on how much to invest. The analysis of international relatively tight monetary policies in this research reveals that high real interest rates and high nominal interest rates do not have to moderate the subject economic growth in the presence of low inflation expectations, economy's attractiveness to foreign investors and technology transfer effect and accumulation of domestic savings. The developing countries in most of the cases have a positive relation between real interest rate and GDP growth rate as we can see in the result. Again, for majority of the developed countries the inverse relationship between the two is observed. But there should be causality between the GDP growth and the FDI inflows or between GDP growth and the rate of interest to chalk out an implementable policy. Higher development in terms of infrastructure and more investment results into more inflows of FDIs for better gains. But the unidirectional causality from interest rate to GDP growth, suggest that interest rate has more role to play in impacting the change in GDP rather than GDP changing the interest rate. More research should be done in understanding the required policy framework to control the economy with the policy tool like interest rate which are suitable for various economic environment of different countries of the World.

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