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Journal of Research & Reviews in Social Sciences Pakistan

Journal homepage: http://journal.kinnaird.edu.pk

THE EFFECTS OF MONETARY POLICY ON POVERTY ALLEVIATION IN PAKISTAN

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Abstract

This research analyzes the effect of monetary policy of central bank on the poverty alleviation. Monetary policy is the policy adopted by the monetary authority of a country that controls either the interest rate payable on very short-term borrowing or the money supply, targeting inflation or the interest rate to ensure price stability and general trust in the currency. This study is taking two variables in monetary policy namely interest rate and money supply. Effects of both variables examined on poverty rate in context of Pakistan. Moreover, association and effect examined between both variables (interest rate and money supply). This study comprises on quantitative research methodology as secondary data taken from world indicator from 2001 to 2017. Regression analysis applied on collected data. According to findings, if central bank increases in supply of money in economy, it cannot reduce poverty rate in Pakistan. It is because more money supply will bring inflation, which discourages investment of all types. If high interest rate set by central bank then it cannot bring significant reduction in poverty rate of Pakistan as it will reduces the investment and overall employment. If central bank set increased interest rate then it deceases the money supply in the economy of Pakistan, as funds will be, divert to banks for earning interest on deposits. Recommendations and conclusion are given at the end of this paper.

Keywords

Monetary policy, Poverty, Central Banks, Interest Rates, Money Supply.

1. Introduction

There is wide an agreement about the major goals of economic policy among economists, which comprises on high employment, stable prices, and rapid growth (Friedman, 1995). Monetary policy linked with interest rate and credit rate. The Bank of England in 1694 was responsible to print notes and back them with gold. The idea of monetary policy as independent of executive action established later. The goal of monetary policy has link with central bank which responsibility is to preserve the value of the currency. Central banks as part of the gold standard uses the interest rate, which has an effect on the entire economy. The central bank influences interest rates by expanding or contracting the monetary base, which consists of currency in circulation and banks' reserves on deposit at the central bank. The primary way that the central bank can affect the monetary base is by open market operations or sales and purchases of second hand government debt or by changing the reserve requirements. Lowering reserve requirements has a similar effect, freeing up funds for banks to increase loans or buy other profitable assets. A central bank may have an inflation target of 2% for a given year, and if inflation turns out to be 5%, then the central bank will typically have to submit an explanation. The inflation target achieved through periodic adjustments to the Central Bank interest rate target. A central conjecture of Keynesian economics is that the central bank can arouse aggregate demand in the short run. Because a noteworthy number of prices in the economy fixed in the short run and firms will produce as many goods and services as demanded in the end, however, money is neutral, as in the neoclassical model (Adelina-Geanina, 2000). This research paper aims to examine the effect of monetary policy, in which two variables taken namely interest rate and money supply, for examining their effects on the poverty alleviation in Pakistan. This study comprises on quantitative research methodology as secondary data taken for period from 2001 to 2017. Regression and correlation analysis applied on collected data to find results. This paper organized in following order: problem statement, research questions, research objectives, research hypothesis, conceptual framework, literature review, research methodology, results, discussion, implication, limitation, recommendation, future direction and conclusion.

1.1 Problem Statement

Monetary policy is a tool, which uses for poverty alleviation. By expansionary monetary policy, condition of poor in short run can improve in short run but not in long run. Expansionary monetary brings more money supply in an economy, which made cause of inflation. If inflation becomes low and aggregate demand growth becomes steady through monetary policy then wellbeing of poor can be healthier in long run (Romer & Romer, 1998). For this purpose, this study conducted to know the effects of monetary policy on poverty alleviation. A problem statement is that How can central bank reduce poverty by monetary policy in Pakistan?

1.2 Research Questions

Q1. Is the effect of money supply on poverty significant?

Q2. Is the effect of interest rate on poverty significant?

Q3. Is the effect of interest rate on money supply significant?

1.3 Research Objectives

• To examine the effect of money supply on the poverty.

• To examine the effect of interest rate on the poverty.

• To examine the effect of interest rate on the money supply.

1.4 Research Hypothesis

H1: There is no significant effect of money supply on poverty.

H2: There is no significant effect of interest rate on poverty.

H3: There is no significant effect of interest rate on money supply.

1.5 Conceptual Framework

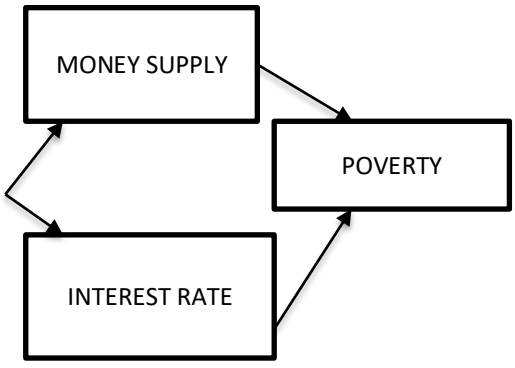

Figure 1 Effect of independent variables i.e. Money Supply, Interest Rate on Dependent variables i.e. Poverty alleviation

Source: Author elaboration

There are two independent variables i.e. money supply, interest rate and one dependent variable i.e. poverty. This research analyses the effect of above-mentioned independent variables on the said dependent variable. Moreover, effect of interest rate on money supply is examined where interest rate is opted as independent variable and money supply is opted as dependent variable.

2. Literature Review

This paper investigates monetary policy's influence on inequality and poverty by using Panel System GMM estimation for household data on income and consumption of the United States and the countries of the Economic and monetary Community of Central Africa (EMCCA) from 1986 to 2011. The resulting estimates indicates that interest rate and poverty positively correlated in the United States, which indicates that elevating interest rate rises poverty rate. In this way, purpose of monetary policy is to reduce the inflation, which have a positive impact on poverty reduction. Most poor people are highly likely to be net debtors. For them, higher interest rate may be a burden, which render to cut back their spending. Any people in poverty can face worse situation due to swap effects of interest rate. When interest rate hikes, opportunity cost of present ingesting increases, which reduces the current spending and extends the prospect consumption. Unlike in the EMCCA countries, conventional monetary policy does not affect income distribution and poverty. Monetary policy affects poverty through the quantitative easing channel. This second finding goes against the

theory and previous studies, but there are two explanations behind this. First, the low financial development observed in the EMCCA countries. Second is the low access to banking services for the households. (Yannick & Ekobena, 2014).

The paper examines the usefulness of indirect monetary policy instruments in plummeting poverty in Nigeria using a multiple regression model as well as time series data covering the period 1986 to 2012. The Ordinary Least Squares (OLS) technique applied in the estimation of the regression model. The OLS regression results indicated that interest rate; banking sector's credit to the economy, bank reserve requirement, bank liquidity ratio, central bank discount rate and inflation rate could not significantly affect poverty rate except money supply, real gross domestic product, unemployment rate and balance of payment (Goshit & Longduut, 2016).

A study examines the influence of monetary policy on poverty and inequality both over the business cycle in the United States and over the longer run in a large sample of countries. Analysis shows that significant links exist between monetary policy and the well-being of the poor in both the short run and the long run but that the short-run and long run relationships go in opposite directions. Purpose of expansionary monetary policy is to rapid output growth which is associated with improved conditions for the poor in the short run, but prudent monetary policy do work on low inflation and steady output growth, which is associated with greater well-being of the poor in the end (Romer & Romer, 1999). A study comparing Islamic or interest free microfinance with conventional microfinance in Bosnia and Hergzovia suggests that interest free MFIs are more oriented towards the socially and economically disadvantaged than conventional interest-based MFIs regarding cost of loans, approved elegance periods, grants, flexibility in the event of repayment failure, and targeting the most demoted groups (Hamad & Duman, 2014).

To earn money in the shape of interest, people as well as banks divert their deposits for the purchase of bonds and securities for speculative purposes, and so, quite a large amount of liquid assets is set aside for just unproductive activity. It also promotes trade and investment, however, charging interest on them increases the price of goods produced. Moreover, banks also keep certain percentage of their deposits with other banks and financial institutions with higher rate of interest without investing these deposits in productive investment purposes. So, the money and savings available for productive investment becomes scarce. The capital when becomes scarce and limited raises the interest rate due to a positive relationship between the two. More funds will be divert to banks and speculation, which made cause of further reduction in real investment, employment opportunities, income of the people, purchasing power of the people, increased prices of commodities due to disequilibrium between supply and demand for commodities, and as a result, increase in poverty and a low standard of life of the masses (Farooq, 2012). A study examine the association of

monetary policy with poverty of different countries through time series analysis on secondary data. It is found that cyclical boom through expansionary monetary policy is linked with better condition of poor in short run. If inflation becomes low and aggregate demand growth becomes steady through monetary policy then wellbeing of poor can be healthier in long run (Romer & Romer, 1998). According to results, contractionary monetary policy tremors have no clear effect on real GDP, despite of prices move only gradually in response to a monetary policy shock (Uhlig, 2005). A study analyzes the association between monetary policy and economic growth. According to results, it was founded that exchange rate effects to money supply which effects to the growth rate of the gross domestic product. Conversely, monetary policy tightening in most of the ECOWAS countries aims to mitigate the rise in inflation rate which may badly affects economic growth of the region thereby investment may be discouraged due to high lending rate (Olamide & Maredza, 2019). A study found that lower interest rates renders to higher growth and higher rates renders to lower growth (Lee & Werner, 2018). This paper explores the role played by monetary policy in indorsing economic growth in the South African economy over the period 2000-2010 through applying tests of Augmented Dickey-Fuller and Phillips Perron unit root. As per findings, money supply, repo rate and exchange rate are inconsequential monetary policy instruments that drive growth in South Africa whereas inflation is noteworthy. According to findings, monetary policies should use to create a favorable investment climate that attracts both domestic and foreign investments, which made cause of encouraging a maintainable economic growth. The government should also rise the government spending on the productive sectors of the economy to promote economic growth. Monetary policy alone is unable to spur the economic growth (Precious & Palesa , 2014). A study applied Panel System GMM estimation for examining the short and long-term effects of monetary policy on heterogeneously the individual welfare i.e. income distribution as well as poverty in Korea from 1997 to 2007. Real interest rate and poverty are positively interrelated while real interest rate does not have substantial effects on income distribution. An escalation in interest rate becomes a burden to net debtors, which decreases their spending. Both income growth and inflation rate are negatively associated with poverty. Income growth reduces poverty and improves income distribution. Inflation reduces poverty while inflation improves income distribution in the short-term but has no substantial effects on income distribution in the long-term. This means that people in poverty base their decision-making on inflation rate. If they observe inflation and envisage the economy will get better, they might truly spend more. Long-term effects of monetary policy on poverty gap are greater than short-term effects by 60% (Kang, Chung, & Sohn, 2013).

A study revealed that monetary policy innovations play a modest role in producing fluctuations in output for the EMU3 euro area economies – Germany, France and Italy by applying a new VAR identification procedure (Rafiq & Mallick, 2008). A study conducted on following variables: money supply, total loans, employment rates and industrial production index monthly variables for the period of 2005- 2010 by using VAR method. The results represented that changes in money stock (M2) have an impact on real variables such as employment and output through credit stock (Cambazoğlu & Karaalp, 2012). The study aims at investigating the effect of Real Gross Domestic Product (GDP), interest rate, and inflation rate on national saving rate in kingdom of Bahrain over the last twenty years applying tests of Augmented Dickey-Fuller unit root and co-integration to examine the long run relationship between the variables under study. According to results, Nominal interest rate has positive and significant effect on national saving rate at 1% level on the short run whilst its effect in the end seems to be positive but insignificant. Inflation rate has positive and significant effect on national saving rate in both the short run and the long run (El-Seoud, 2014).

3. Research Methodology Data

The main purpose of this investigation is to examine the effect of money supply and interest rate on the poverty alleviation. Moreover, effect of interest rate on money supply is also examined. This study comprises on quantitative research methodology as secondary data is taken from websites of world indicator and ceicdata. The selected sample time period is from 2001 to 2017 of Pakistan. Regression and correlation analysis are applied to examine above effects of independent variables on dependent variables.

Tests

Regression analyses is applied for finding results. The model has three styles shown below:

Money Supply = a + b (Poverty) + e

Interest Rate = a + b (Poverty) + e

Money Supply = a + b (Interest Rate) + e

4. Result

Table 1 Descriptive Statistics

	Mean	Std. Deviation	N
Poverty	21.302	19.1902	98
interest_rate_1	1.1354	.44036	98
Money_Supply_1	1.6626	.15340	98

The variable, Poverty shows the highest mean (21.302) and standard deviation (19.19) in all whereas interest rate shows the lowest mean (1.13) and standard deviation (0.44) and money supply has mean (1.66) and standard deviation (0.153).

Table 2 Correlations

		Poverty	interest_rate_1	Money_Supply_1
Pearson Correlation	Poverty	1.000	-.201	.380
	interest_rate_1	-.201	1.000	-.196
	Money_Supply_1	.380	-.196	1.000
Sig. (1-tailed)	Poverty	.	.024	.000
	interest_rate_1	.024	.	.027
	Money_Supply_1	.000	.027	.
N	Poverty	98	98	98
	interest_rate_1	98	98	98
	Money_Supply_1	98	98	98

Poverty rate has negative and weak correlation with interest/lending rate i.e. -0.201. However, Poverty rate has positive and weak correlation with money supply i.e. 0.38. Interest rate and money supply has negative and weak correlation with each other i.e. -0.196.

Table 3 Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Money_Supply_1, interest_rate_1[b]	.	Enter

a. Dependent Variable: Poverty
b. All requested variables entered.

Enter method is used for regression analysis on model which comprises on two independent variables i.e. money supply and interest rate and one dependent variable i.e. Poverty.

Table 4 Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.401[a]	.161	.143	17.7640	.161	9.100	2	95	.000	.221

a. Predictors: (Constant), Money_Supply_1, interest_rate_1
b. Dependent Variable: Poverty

In model summary, value of correlation is 0.401 which shows positive and moderate relationship between independent variables (money supply and interest rate) and dependent variable (Poverty). R^2 (0.161)

shows 16% variation which is explained in dependent variable (Poverty) due to independent variables (money supply and interest rate). Adjusted R^2 is also less i.e. 0.143 which shows 14% variation in dependent variable (Poverty) due to independent variables. There is no auto correlation as value of Durbin Watson is 0.221.

Table 5 ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	5743.376	2	2871.688	9.100	.000[b]
	Residual	29978.083	95	315.559		
	Total	35721.460	97			

a. Dependent Variable: Poverty
b. Predictors: (Constant), Money_Supply_1, interest_rate_1

H_0: The regression model is not a good fit.

H_A: The regression model is good fit.

We reject H_0 as p-value (0.00) is less than 0.05.

Table 6 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	-45.797	21.448		-2.135	.035	-88.376	-3.217		
	interest_rate_1	-5.735	4.176	-.132	-1.373	.173	-14.026	2.557	.962	1.040
	Money_Supply_1	44.274	11.989	.354	3.693	.000	20.472	68.075	.962	1.040

a. Dependent Variable: Poverty

If one unit/percentage increases in interest rate then -5.735 decreases comes in Poverty. This change is insignificant as p-value > 0.05. This decrease falls in confidence limit (-14.026, 2.557). If one unit/percentage increases in money supply then 0.354 increase comes in Poverty. This change is significant as p-value less than 0.05. This increase falls in confidence limit (20.472, 68.075). There is no multicollineriaty as value of VIF falls within limit 1 to 10.

Table 7 Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-8.656	38.230	21.302	7.6948	98
Residual	-21.3296	34.1120	.0000	17.5799	98
Std. Predicted Value	-3.893	2.200	.000	1.000	98
Std. Residual	-1.201	1.920	.000	.990	98

a. Dependent Variable: Poverty

Predicted value of above model consists on mean (12.30), standard deviation (7.69), minimum value (-8.65) and maximum value (38.23). Residual value of above model consists on standard deviation (17.57), minimum value (-21.32) and maximum value (34.11).

Effect of Interest rate on Money Supply by Regression Analysis

Table 8 Descriptive Statistics

	Mean	Std. Deviation	N
Money_Supply_1	1.6608	.15145	101
interest_rate_1	1.1336	.43385	101

Money supply shows the mean (1.66) and standard deviation (0.15) and interest rate denotes the mean (1.13) and standard deviation (0.43).

Table 9 Correlations

		Money_Supply_1	interest_rate_1
Pearson Correlation	Money_Supply_1	1.000	-.193
	interest_rate_1	-.193	1.000
Sig. (1-tailed)	Money_Supply_1	.	.026
	interest_rate_1	.026	.
N	Money_Supply_1	101	101
	interest_rate_1	101	101

Money supply has negative and weak correlation with interest/lending rate i.e. -0.193.

Enter method is used for regression analysis on model which comprises on one independent variables i.e. interest rate and one dependent variable i.e. Money Supply.

Table 10 Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	interest_rate_1[b]	.	Enter

a. Dependent Variable: Money_Supply_1

b. All requested variables entered.

Table 11 Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.193[a]	.037	.028	.14934	.037	3.844	1	99	.053	.345

a. Predictors: (Constant), interest_rate_1

b. Dependent Variable: Money_Supply_1

In model summary, value of correlation is 0.193, which shows positive and weak relationship between independent variables (interest rate) and dependent variable (money supply). R^2 i.e. 0.037 explains 03% variation in dependent variable. Adjusted R^2 is also less i.e. 0.028 which explains 02% variation in dependent variable. There is no auto correlation as value of Durbin Watson is (0.345).

Table 12 ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.086	1	0.086	3.844	0.053[b]
	Residual	2.208	99	0.022		
	Total	2.294	100			

a. Dependent Variable: Money_Supply_1

b. Predictors: (Constant), interest_rate_1

H_0: the regression model is not a good fit.

H_A: the regression model is good fit.

We reject H_0 as p-value (0.053) is near to 0.05.

Table 13 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	1.737	0.042		41.606	.000	1.654	1.820		
	interest_rate_1	-.067	0.034	-.193	-1.961	.053	-0.136	0.001	1.000	1.000

a. Dependent Variable: Money_Supply_1

If one unit/percentage increases in interest rate then -0.193 decreases comes in Money Supply. This change is significant as p-value close to 0.05. This decrease falls in confidence limit (-0.136, 0.001). There is no multicollineriaty as value of VIF falls within limit (1 to 10).

Table 14 Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.5974	1.8132	1.6608	.02928	101
Residual	-.58176	.30447	.00000	.14859	101
Std. Predicted Value	-2.166	5.206	.000	1.000	101
Std. Residual	-3.895	2.039	.000	.995	101

a. Dependent Variable: Money_Supply_1

Predicted value of above model consists on mean (1.66), standard deviation (0.029), minimum value (1.59) and maximum value (1.81). Residual value of above model consists on standard deviation (0.14), minimum value (-0.58) and maximum value (0.30).

5. Discussion

There were three following research questions: Is the effect of money supply on poverty significant? Is the effect of interest rate on poverty significant? Is the effect of interest rate on money supply significant? On said research questions, following hypothesizes are constructed:

H1: There is no significant effect of money supply on poverty.

If one unit/percentage increases in money supply then 0.354 increase comes in Poverty rate. This change is significant as p-value less than 0.05.

This increase falls in confidence limit (20.472, 68.075). Finding of result supports finding of previous study, which showed that purpose of expansionary monetary policy, is to rapid output growth that is associated with improved conditions for the poor in the short run not long run (Romer & Romer, 1999). Finding of study showed if central bank increases in supply of money in economy, it cannot reduce poverty rate in Pakistan. It is because more money supply will bring increase in prices of all goods and services in economy, which also referred as inflation. This inflation will bring further increment in poverty rate. High inflation generates expectations of future macroeconomic instability and distortionary policies, upsets financial markets and creates high effective tax rates on capital. In this manner, it discourages investment of all types: human capital accumulation, physical capital accumulation, research and development, foreign direct investment and technology transfer.

H2: There is no significant effect of interest rate on poverty rate. If one unit/percentage increases in interest rate then -5.735 decreases comes in Poverty rate. This change is insignificant as p-value > 0.05. This decrease falls in confidence limit (-14.026, 2.557).

This finding supports previous study. According to previous study conducted on usefulness of indirect monetary policy instruments in plummeting poverty in Nigeria using a multiple regression model as well as time series data covering the period 1986 to 2012, the OLS regression results indicated that interest rate could not significantly affect poverty rate (Goshit & Longduut, 2016). Finding of study denotes that high interest rate set by central bank cannot bring significant reduction in poverty rate of Pakistan as it will reduces the investment and overall employment.

H3: There is no significant effect of interest rate on money supply. If one unit/percentage increases in interest rate then -0.193 decrease comes in Money Supply. This change is significant as p-value close to 0.05. This decrease falls in confidence limit (-.136, .001). This finding match with previous study. According to previous study, people as well as banks divert their deposits for the purchase of bonds and securities for speculative purposes to earn money in the shape of interest. More funds will be divert to banks and speculation if interest rate is high which made cause of further reduction in real investment (Farooq, 2012). As per finding, if central bank set increased interest rate then it deceases the money supply in the economy of Pakistan.

6. Implications

Economist and state bank/central bank can design monetary policy in such a way, which will increase the growth of GDP, improves the living standard of poor, and bring reduction in poverty.

7. Limitation

This study considers secondary data of Pakistan. Many countries can be included. Only three variables i.e. interest rate, money supply, and poverty rate are included, other variables like GDP, employment rate can be included. One regression technique is used.

8. Recommendations

- Central bank should design policy in a way that bank cannot waste money in speculation and other unproductive activities.
- Central bank should work on inflation with interest rate so that money value remain stable without losing its value.
- Government should invest loan amount in productive activities, which aid in enhancing GDP and plummeting poverty.
- Central bank should keep balance in money supply. More money supply will bring increased inflation and losing value of money. If central banks or banks set interest rate high then more depositors will keep their amount in bank accounts, which will also decrease the money supply circulation in an economy. This accumulated money can be invested in productive activities that will made cause of growth of GDP and improving living standard of poverty.
- Central bank should made policy regarding interest rate in such a way, which will promote the small enterprises. High interest rate can be levied on rich enterprises and low interest rate can be levied on small enterprises. In this way, money supply in economy can be kept in balance form, which will keep money value stable.

9. Future Direction

Other variables like inflation, consumer price index can be included to get broad picture for growth of GDP and poverty. Secondary data of many other countries can also be taken for getting broader picture. Moreover, structure equation model analysis can be applied to examine the association among all variables.

10. Conclusion

Monetary policy is the policy adopted by the monetary authority of a country that controls either the interest rate payable on very short-term borrowing or the money supply, targeting inflation or the interest rate to ensure price stability and general trust in the currency. This research analyzes the effect of monetary policy of central bank on the poverty alleviation. According to Regression analysis, if central bank increases in supply of money in economy, it cannot reduce poverty rate in Pakistan. It is because more money supply will bring inflation, which discourages investment of all types. If high interest rate is set by central bank then it cannot bring significant reduction in poverty rate of Pakistan as it will reduces the investment and overall employment. If central bank set increased interest rate then it deceases the money supply in the economy of Pakistan, as funds will be, divert to banks for earning interest on deposits. These findings also support to previous studies. In future, other variables like inflation, consumer price index can be included to get broad picture for growth of GDP and poverty alleviation. Central bank can design prudent monetary policy

to do work on low inflation and steady output growth.

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