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Constructive Role of Idle Cash in Pakistan: An Empirical Analysis

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Abstract

Idle cash is a short-run phenomenon that turns into active cash and enhances the pace of economic growth. People for short period keep away a part of their cash from the running flow of transaction and injects it into transactions or speculative stream in long run. Low-interest rate discourages savers to earn money so people prefer to keep their money at home. Savers wait to make a positive investment in the long run. In this paper dual estimation techniques i.e., Frequentist and Bayesian are applied over the time period of 1995-2018 in the case of Pakistan. Findings show that households' idle cash has a positive impact on the economic growth of Pakistan. On the basis of findings, it can be recommended that a safe investment environment should be provided to households as it will not only enhance the growth of Pakistan's economy but also tackle other problems like unemployment and poverty.

Key Words: *Idle Cash, Money Hoarding, Active Cash, Bayesian, Economic Growth, Frequentist*
JEL Codes: C11, O47, G29, D14, C54, C58

1 Introduction

Paper money came into existence after the failure of the barter system. The money economy is associated with enormous perils such that during economic crises value of domestic money is subject to volatility so there should exist some mechanism that protects the value of money. The money economy in the situation of market uncertainties becomes liberated by the activities of financial institutions and fund management principles. Idle cash is a distinct hazard in the money economy that prevails in less developed countries where people keep earning or profit out of circulation which can significantly affect economic performance,

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particularly on planned investment growth. This idle cash emerges from poor saving and investment habits. The majority of people in the LDC's believe this idle cash is a haven due to its function of smooth financial transactions and it also reduces the risk of loss during an economic downturn (Sakanko, Ijoko, & Mohammed , 2019). Holding idle cash not only reduces the cost of transactions but also provides protection in unforeseen situations (Keynes, 1936). Idle, hoarded, inactive, and idle savings terms can be used interchangeably. Some books define idle cash as the excess amount that is left after payments of goods and services. They put precautionary and speculative motives together as hoarding reasons (Haberler, 1958).

Idle money means earning no money. To run investment activities every economy needs a substantial amount of money to narrow down the gap between the borrower and investors as the inadequacy of funds leads to slow economic growth. Idle cash holders via macroeconomic uncertainties do hurt an economy (Myers, 1977). The likely tracing factors of idle money could be Keynes's propounded transaction, precautionary, and speculative factors (Sakanko, Ijoko, & Mohammed , 2019). Currency may be held by non-banks not only for transaction purposes but also for hoarding (Pickhardt & Sardà, 2012). There is a need to differentiate between transaction and idle balances because the money which is kept for transaction purposes may be used inefficiently (Catt, 1962). It is very important to specify the time period as all balances are idle overnight while in long run all idle cash turn into active balances (Haberler, 1958). The escalating trend in cash in circulation might influence the economy as well as the monetary policy in diverse ways. In one way it could evaporate monetary policy through the process of money creation by holding a greater amount of money in hands. On the other way, the central's bank income could be increased through the issuance of more amounts of cash. To maintain the excess flow of money, the economy bears direct costs (i.e., in the form of paper's cost and design fees to stop counterfeiting) and indirect costs like maintenance of cash provision and payment services by firms, shops, individuals, and commercial banks). Due to this cash dominance state, new technology firm hesitates to enter into financial activities and innovative payment system.

Demands of cash holdings by cash holders are determined by various motives i.e., rate of interest, precautionary motive, age, etc. (Shirai & Sugandi, 2019). Households and non-financial firms are the second largest cash holder. They demand liquid assets such as cash and deposits to meet the precautionary motive or to face the condition of uncertainty in the business environment. Especially when there is a situation of asymmetry between borrower and creditor firms with large external funding risk prefer to keep most liquid assets rather than external funding (Myers and Majluf 1984). Deposits and cash are close substitutes as both perform the function of payment and store of value which makes households sensitive towards interest rate. Lower interest rate attracts firm to hold greater demand of cash form of cash equivalent (i.e., bank deposit). According to Tobin's observation society money is necessarily a store of value otherwise it could not be used as a medium of payment (Tobin.J, 1992 as cited in Abdullah, 2014).

Figure 1:
Volume of cash and deposits held by households and corporate sector in Pakistan 1995-2019

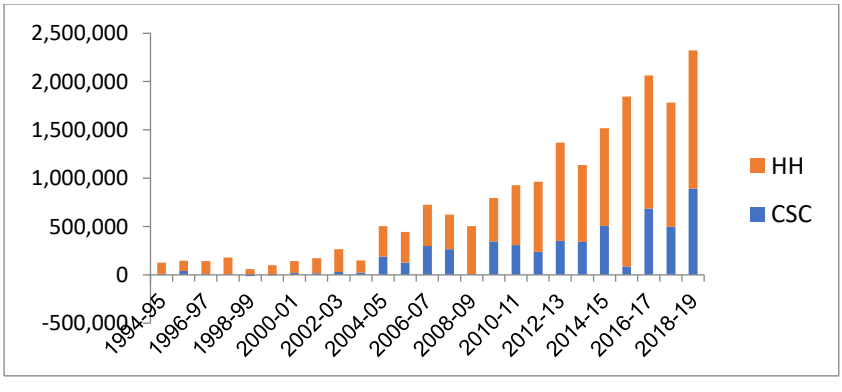
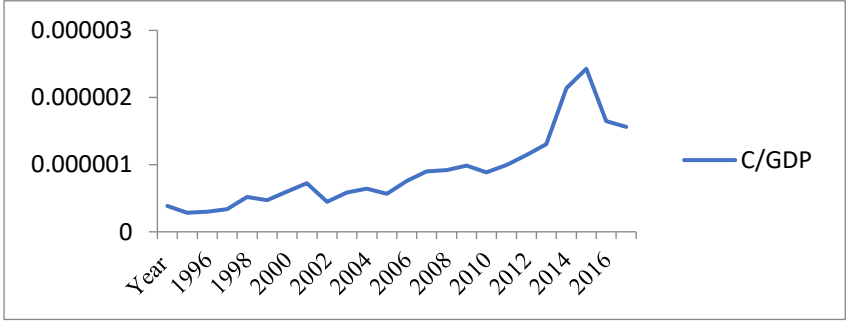


Figure 1. depicts drastic increase in the volume of cash and deposits held by households than non-financial corporate sector in Pakistan over the time period 1994-2019. This situation suggests that households' holdings are the main reasons for the continue increase in the number of deposits and currency in circulation (Otani & Suzuki, 2008). Sizeable portion of cash in form of idle money generates a hurdle for the bank to create deposits that magnify the sluggish growth of investment and declining national income.

Nowadays, the concept of hoarding is associated with antisocial and unproductive habits. Politicians and economists put light on the positive impact of spending on economic growth (Patruti, 2015). After the 2008's global financial crisis, the astonishing recovery of cash usage has been observed in most developed countries like Japan, U.S., and in the Eurozone. This mountainous trend can also be seen in the scenario of developing countries like Pakistan, during the period 2008-2018 (see Figure. 2).

Figure 2:
Currency to GDP ratio(C/GDP) in Pakistan 1995-2017



The question arises why people prefer currency in form of cash and not the advanced noncash payment system? One may argue that due to strong demand of cash for hoarding outweighs the negative effect of the substitution to non-cash payments (Fujiki & Nakashima, 2019). Macroeconomic uncertainties are major determinants of cash holding through change in interest rate, inflation, and exchange rate (Gao, Grinstein , & Wang , 2017). The expected reason behind the increase in currency circulation in Pakistan may be associated with inflation, government budgetary borrowing, economic activity, remittances inflow, withholding tax on cash withdrawals, industrial production index, investment in national saving schemes, and wheat procurement (Khaskheli, Ahmed, & Hyder, 2013). Low investment protection in a country could be the reason for this cash hoarding (Dittermar, Smith, & Seraes, 2003). According to the tradeoff theory optimal cash holding is determined by the theory of tradeoff between cost related to capital investment in liquid assets and benefits associated with transaction through improved asymmetry information (Sakanko, Ijoko, & Mohammed , 2019).

A higher limit on cash holding not only reduces the yield on transaction balance but also decreases the cost of transactions (Tobin J. , 1956). Currency in circulation (CIC) also gets its pace when various sectors of the economy are headed by corrupt politicians or government officials as they use that cash (bribe) to run their daily transactions which can find the way to go into banking sectors. Politicians turn their homes into banks that have the storage space more than commercial banks (Banuso, 2013).

Findings of study conducted by Nenovsky & Hristov (2000 as cited in Banuso, 2013) suggests that hoarding or saving is one of the reasons behind the increasing demand for money by economic agents. They further describe two types of hoarding, one which is linked with the official economy and the other associated with an unofficial economy. In an official economy when income on substitute assets is lesser than portfolio transformation's transaction cost, people voluntarily hold a percentage of their cash. While in order to maintain the flow of unlawful economic activities economic agents use cash payment that reduces the tax base (Banuso, 2013).

The economic theory describes two subcategories of savings one is investment and the other is additions to private cash balance. Investment implies that earn extra return to the owner. In the other sub-category of saving, the individual stacks somewhere the saved money to meet uncertainty in the future (Mises, 1998). Hoarding money is a challenge from a theoretical perspective which causes to increase in demand for money and raises the purchasing power of monetary units (Rothbard, 2004; Mises, 1998).

Internationally few studies (Otani & Suzuki, 2008; Sakanko, Ijoko, & Mohammed , 2019; Shirai & Sugandi, 2019) examine the impact of money hoarding on economic growth while in the case of Pakistan, no study has been carried out to analyze. The purpose of this paper is to explore the nature of relationship between idle balance held by households and economic growth for the time period of 1995-2018.

2 Literature Review

Mixed views exist about idle money. Idle cash is derived from the transaction demand of money without taking interest rate fluctuations (Thorn , 1974). Individuals and managers might use to utilize these funds for self-benefits or for investment verdicts (Jensen , 1986). Keynes in (1936) made distinction between active and idle balances where active balance refers to transaction and precautionary motive while speculative motive comes under idle balance[3]. Keynes in (1937) introduce another motive called the Finance motive. Under the finance motive transaction demand for money is the summation of consumption and investment function (Davidson , 1965). If active balances perform cushioning function, then one cannot distinguish active from idle balances, unless a restriction is imposed on the length of fiscal period (Copeland, 1952).

According to Tobin (1958) idle money is excess aggregate amount of all expected expenditures over aggregate receipts during a year ahead. Keynes, Baumol, and Tobin separately analyzed transaction demand from idle money by assuming of perfectly foreseen expenditure. Catt (1962) describes three types of funds holders by assuming that every member within the group has same shaped schedule. First group is institutional lenders i.e., such institution[4] who provides funds to finance the investment, second group constitutes non-institutional lenders with same principal motive. While the third group is non-lender that do not provide funds at any rate of interest. They prefer to keep large portion of funds liquid and the source of their income is from other than interest and dividends. People leave liquid funds because to earn handsome amount of interest, they should invest large sum of money.

In the absence of risk aversion and unchanged interest rate, people still keep transaction and idle cash balances (Thorn , 1974). Liquidity means the accumulation of funds for some specific purpose. Meanwhile, Tobin's mean-variance model is un-capable to define demand for idle cash (Tsiang, 1972). A wave of criticism

[3] These terms have not been used in Keynes' original work (Davidson , 1965).
[4] Saving banks, insurance companies, building societies, and other non-banking financial intermediaries,

by Dvoretzky, Olivera, Hichs, and Tisang suggest that the demand of idle cash balance rises due to unforeseen expenditures that negate Keynes' precautionary demand of money. Except under restrictive assumption, the independence between transaction and asset demand is not possible[5].

If the purpose of idle cash is a speculative motive, then cost is lower it leads to expansion, but this cost would be higher when people use this cash for building social status, asset acquiring etc. It could be the secret of a rich man in a poor state (Iftikhar, 2017). In case of developing countries like Nigeria the positive has been established by Sakanko, Ijoko, & Mohammed in (2019) between idle cash and economic growth by using mixed methodology.

3 Methodology

In present paper Frequentist and Bayesian analysis is used to examine the effect of idle money hold by households on economic growth of Pakistan over the time period of 1995 to 2018. Ordinary Least Square (OLS) and Hybrid Metropolis – Hastings Sampling with Gibbs Updates are applied. Frequentist provide equal or surpasses results when it is applied on small sample than Monte Carlo Markov Chain (MCMC) without careful selection about prior distribution (McNeish, 2016). Small-size sample requires a careful selection of estimation technique[6,7.] To clear this distortion Kwiatkowski-Phillips-Schmidt-Shin (KPSS) and NG-Perron tests have been used instead of the conventional time series unit root tests (Ishtiaq, Tauheed , & Ishtiaq , 2021). The following variables currency & deposits, exchange rate, real interest rate, gross domestic product (constant 2010), and inflation rate have been used. Sakanko, Ijoko, & Mohammed (2019) use these variables to examine that how economy is affected by idle cash. Currency & deposit data is obtained from the Flow of Funds Accounts of Pakistan (State Bank of Pakistan , 2018-19). Real

[5]For brief discussion please see (Thorn , 1974)

[6] To work with small samples (less than 30) inference method like OLS has been developed (Schoot & Miočević, 2020).

[7] While Bayesian methods are better equipped to model data with small sample size, estimates are highly sensitive to the specification of the prior distribution (McNeish, 2016).

interest rate is obtained from money market rate[8] as data on real interest rate is not available for the current time period. Two deflators (GDP deflator & CPI) are used to remove the inflationary effects from currency & deposit variable. The focus of this analysis is a household that hoards money so CPI deflator is used because it exhibits the true impact of inflation on households than GDP deflator (Lumen, 2021). Both deflators are used in this paper. Specifications of models are as follows:

$$Model\ 1: GDP = f(C\&D/CPI, INF, ER, RIR)$$

$$Model\ 2: GDP = f(C\&D/GDP, INF, ER, RIR)$$

Where C&D is currency and deposits, INF is inflation, ER is the exchange rate, RIR is real interest rate. (Sakanko, Ijoko, & Mohammed , 2019) used this model in their study. Due to unavailability of data on commercial banks' lending rates, the real interest rate variable is used.

4 Results and Discussion

KPSS and Ng-Perron unit root tests results are shown in Table 1.

Table 1:

Unit root test results

Variables		KPSS	Ng-Perron			
		Statistics	**MZa**	**Zt**	**MSB**	**MPT**
C&D/CPI		0.1108*	10.9467*	2.3381*	0.2136	8.3314
C& D/GDP		0.1499*	10.9767*	2.2420*	0.2225	9.0545
Exchange rate		0.1138*	5.8214*	1.5469*	0.2657	15.34
GDP		0.1521*	-14.7966*	2.5942*	0.1753***	6.8574
Real Interest rate		0.1337*	-8.5896*	2.0575*	0.2395	2.9075*
Inflation Rate		0.0966*	-6.1636*	1.7076*	0.2770	4.1220**
Critical Values	1%	0.2160	-23.8000	3.4200	0.1430	4.0300
	5%	0.1460	-17.3000	2.9100	0.1680	5.4800
	10%	0.1190	-14.2000	2.6200	0.1850	6.6700

Note: 1%, 5%, and 10% level of significance are denoted by respectively *, **, ***.

[8] See (Aizenman, Cheng , & Ito, 2016)

It shows that all variables currency & deposits, exchange rate, real interest rate, gross domestic product (constant 2010), and inflation rate are stationary at level.[9]

After stationarity analysis appropriate estimation technique is selected. As all the variables are stationary at level so OLS (Frequentist) and Bayesian linear regression are suitable techniques. Results of both techniques are presented in Table 2. Estimated results show that idle cash balance by households has significant and positive impact on the economic growth of Pakistan during the year 1995-2018.

Under both techniques there exist discrepancies among variable coefficients. This is due to the fact because CPI is calculated by Laspeyres aggregate whereas an ideal fisher aggregate is used for GDP deflator (Jonathan.D, 2016). Currency & Deposit have positive and significant impact on economic growth (GDP) of Pakistan. It means that one unit increases in currency & deposit increases the GDP by forty three unit.

Table 2:
Estimated models results

Variables	Frequentist		Bayesian	
	GDP deflator	**CPI deflator**	**GDP deflator**	**CPI deflator**
C&D	43022.45*	29861.05*	43432.26	30252.41
Exchange rate	1.08E+09*	1.02E+09*	1.08E+09	1.02E+09
Inflation rate	-1.09E+11*	-9.10E+10*	-1.03E+11	-9.07E+10
Real interest rate	-1.53E+11*	-1.28E+11*	-1.51E+11	-1.27E+11
GDP	2.56E+10*	2.69E+10*	2.51E+10	2.70E+10

Note: 1%, 5%, and 10% level of significance are denoted by respectively *, **, ***

Difference between Frequentist and Bayesian is of interpretation as Frequentists use confidence interval while Bayesian use credible interval. Bayesian do not report p-value but as per credible interval there is a 95% probability all variables'

[9] At least for the objective Bayesian test, the Bayesian approach is not necessary better than the classical ADF approach (Ahking, 2002)

coefficient lie within the interval. Results are presented in Table 2.

The nominal exchange rate has also a positive and significant impact on the economic growth of Pakistan[10]. Appreciation in exchange rate by one unit excels the GDP by eleven units. This result is in line with the finding of (Ahmad , Ahmad , & Ali, 2013). While inflation has negative impact on economic growth by keeping other variables constant (Ayyoub , Chaudhry, & Farooq, 2011). It means that annually increase in inflation by one percent leads to decrease economic growth by thirteen units. The real interest rate has negative and significant impact on the economic growth of Pakistan. Also Chughtai, Malik, and Aftab (2015) confirm the signs of variables (inflation, exchange rate, and real interest rate) in the context of Pakistan.

Idle cash is the alternative form of savings that people keep at their homes these savings figures are not reported. There is possibility that it would misinterpret the real statistics of savings in Pakistan (Ali, 2016). And that become the part of active cash after some time. Idle cash is also known as idle saving, means earning no interest. In the Pakistan's scenario downward trend in interest rate has been observed that could be the reason of low savings (Nasir, Khalid , & Mahmood, 2005). Idle cash may interrupt the cycle of economic growth through the junction of non-interest-bearing assets that can accelerate the pace of growth through positive investment (CFI, 2021).

4.1 Diagnostic test

On both estimated model's diagnostics tests i.e., normality, serial correlation, and heteroscedasticity tests are employed. Residuals of estimated models are serial independent, homoscedastic and serial uncorrelated see Table 3.

[10] Normally researchers use real exchange rate while there is no difference between effects of nominal and real exchange rate on economic growth (Kogid , Asid, Lily , Mulok , & Loganathan , 2012). According to Keynes real interest rate has negative impact on economic growth.

Table 3:
Diagnostic Test

Model Specification	Normality test Jarque Bera	Heteroskedasticty test Breusch-Pagan-Godfrey	Serial Correlation Breusch-Godfrey
1	0.6754	0.3498	0.8314
2	0.8494	0.5038	0.6876

However, Diagnostics plots trace, histogram, autocorrelation, and kernel density depicts the convergence of parameters estimated through Bayesian analysis (see appendix A).

5 Conclusion

In this paper, an attempt is made to clarify the effect of idle cash by households on economic growth in context of Pakistan. Cash hoarding is short term phenomena in which people prefer to place cash not in active use, so in this way, they save money, not in interest-bearing assets that turn into active use in the long run. It has been proved from this paper that households' money hoarding during the period of 1995 to 2018 give pace to the economy of Pakistan. A low rate of saving has been witnessed in Pakistan it refers that people choose their houses as vaults rather than banks.

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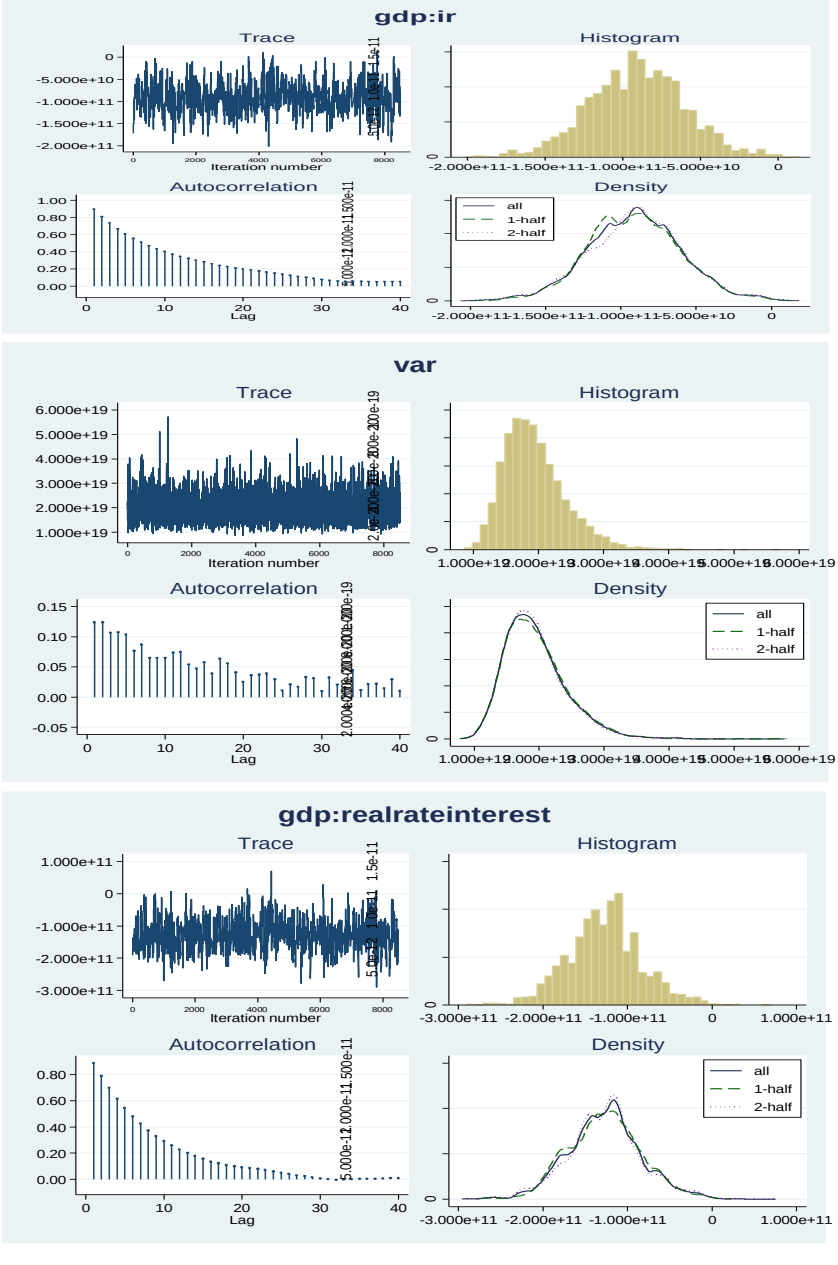
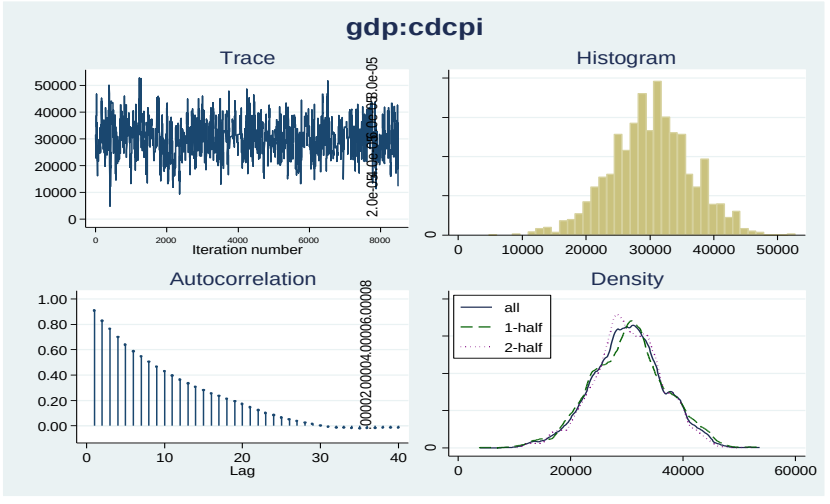
Appendix
Model 1

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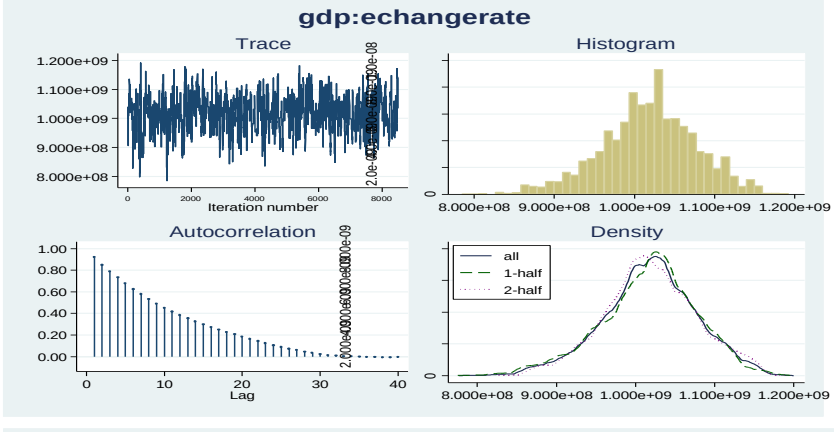
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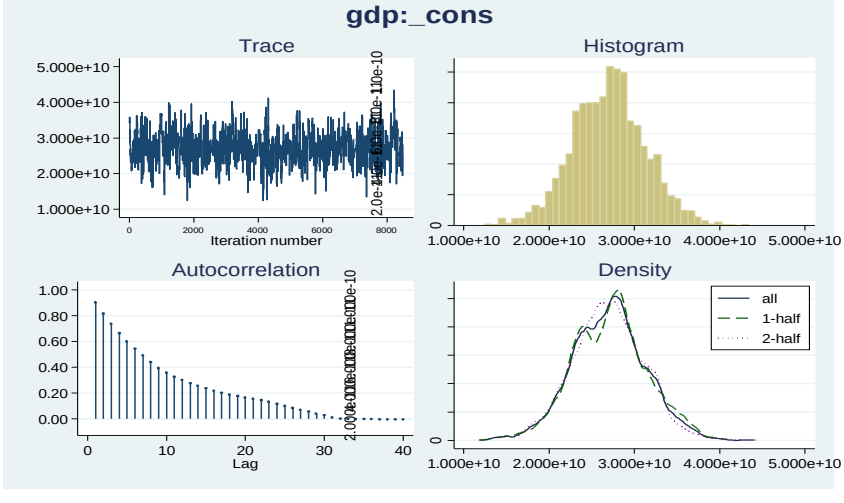
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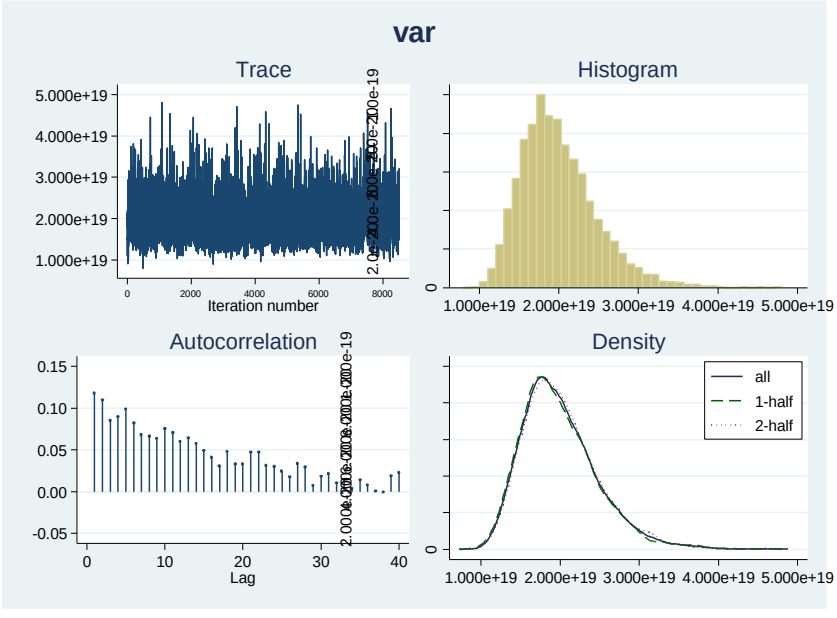
Model 2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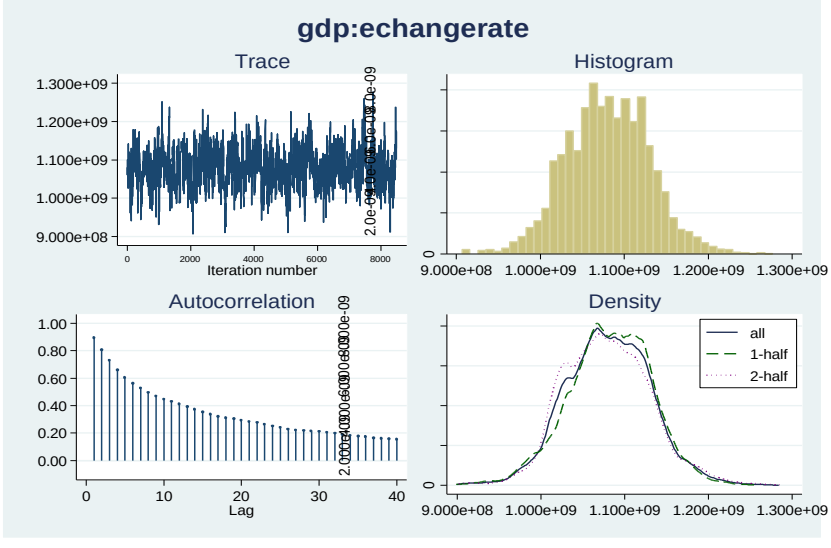
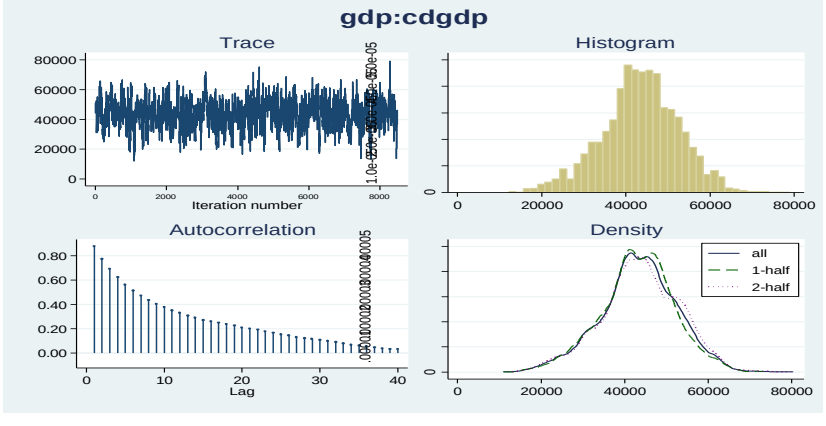
Histogram
Iteration number
Autocorrelation
Density
Lag
all
1-half
2-half


gdp:echangerate
Trace
Histogram
Autocorrelation
Density
Iteration number
Lag
all
1-half
2-half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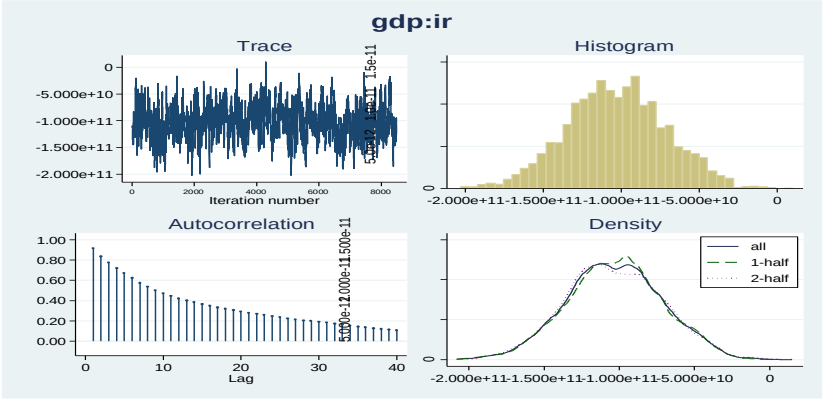
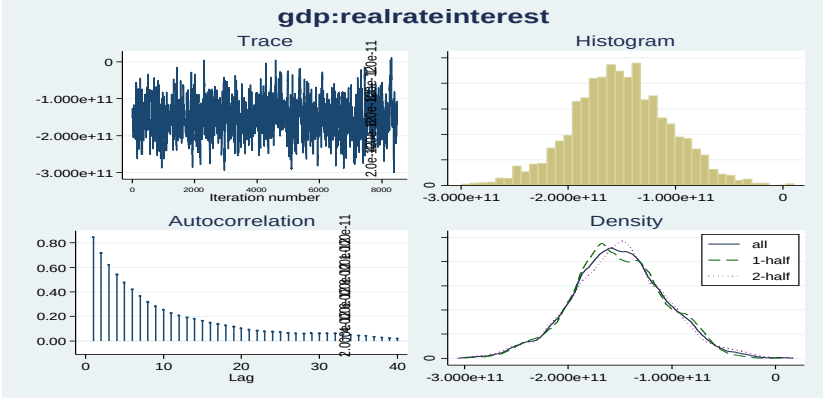
Trace
Histogram
Autocorrelation
Density
Iteration number
Lag
all
1-half
2-half


gdp:ir
Trace
Iteration number
Histogram
Autocorrelation
Lag
Density
all
1-half
2-half


gdp:realrateinterest
Trace
Iteration number
Histogram
Autocorrelation
Lag
Density
all
1-half
2-half