HOW SBP COMMUNICATES WITH GENERAL PUBLIC; DO PEOPLE UNDERSTAND MONETARY POLICY?

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CERTIFICATE

This is to certify that this thesis entitled **"How SBP Communicates with General Public: Do People Understand Monetary Policy?"**, submitted by **Ms. Bushra Maryam Zahra** is accepted in its present form by the Department of Business Studies, Pakistan Institute of Development Economics (PIDE) Islamabad as satisfying the requirements for partial fulfillment of the Degree of Master of Philosophy in Economics and Finance.

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Declaration Form

I ***Bushra Maryam*** hereby state that my MPhil thesis titled ***"How SBP Communicates with General Public; Do People Understand Monetary Policy?"*** is my own work and has not been submitted previously by me for taking any degree from this university Pakistan Institute of Development Economics Islamabad, Pakistan or anywhere else in the country/world.

At any time if my statement is found to be incorrect even after my Graduation the university has the right to withdraw my MPhil degree.

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Dedicated to my beloved Parents

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Abstract

This study empirically investigates the multidimensional aspects of information in Monetary policy of State Bank of Pakistan; that comprises of monetary policy statements (MPS) published by Monetary Policy Committee (MPC) and policy rate. The tone and effect of monetary policy communication is investigated on macroeconomic variables, fiscal variables and financial variable i.e., inflation, policy rate, credit intake, LSM, imports, exports and trade deficit. The analysis is carried out using time series data from monetary policy statements over the period of 2005 to 2021. Empirical model is estimated by using Granger causality test and Autoregressive Distributed Lag (ARDL) technique. Results of the study show a significant and positive relation between LSM and Policy rate and vice versa. Primary data suggested that only 8.7 percent of respondents are familiar with monetary policy. The study provides specific evidence to policymakers that improves and further enhances the transparency and credibility of monetary policy formulation process. Furthermore, this research would help SBP in reviewing policies and incorporating the key components in order to accomplish a favorable feedback from public and retain them over time.

Keywords: *State Bank of Pakistan; Monetary Policy; Autoregressive Distributed Lag (ARDL); Granger Causality Test*

Contents

CHAPTER 1

INTRODUCTION

1.1 Background

The main aim of monetary policy is price stability and this goal remained same throughout the history of central banks (Auclert, 2019). The objective of economic policies is public welfare and to attain this objective government implements several policies including fiscal and monetary policy. Monetary policy helps to attain welfare objective by focusing on output and price stabilization (Blanchard and Gali, 2010). It is the responsibility of monetary authorities to maintain a balance between inflation and unemployment as excess demand causes inflation. In developing countries, aim of monetary policy is to stabilize the price level, improvement of balance of payments, external value of currency, increase savings and through proper allocation decrease disparities among sectors. As far as Pakistan is concerned, SBP targets to stabilize inflation rates set by government, stabilize financial markets, try to maintain Pakistan's foreign exchange reserves and boosts investment activities. Within these aims, long-term objective of economic growth could be achieved.

Ronald Soligo (1967) discussed in his article that in Pakistan during the era of 1947 to 1965 monetary policies failed to achieve its goal determined by the government, as they were weak and ineffective. A change in policy instrument causes a change in macroeconomic conditions such as real GDP and inflation. However, in Pakistan the target variables of monetary policy are inflation and budget deficit (Qazi Masood Ahmed, 2014). However, to achieve monetary policy goals other than price stabilization it is important to adjust the value of money with the changes in macroeconomic variables (inflation, balance of payment, GNI and unemployment), fiscal variables (budget deficit) and independent financial variables (interest rate). In Pakistan, SBP Act 1956 provides legal framework for monetary policy. This

act ensures to regulate monetary policy, credit system and it also aims to increase growth for monetary stability. SBP readings reports that State bank of Pakistan not only focuses on economic growth and price stability but also gives attention to exchange rate. Historically, objectives of monetary policy remained same, but the policy contents have changed over years.

After independence, during pre-martial law period (1947-58) monetary policy protected country's external value of rupees and encouraged exports while discouraged imports. During this period, government played important role in increasing monetary assets. The period of separation of East Pakistan (1958-71) is known for expansion in capital and money market, banking institutions, market reliance and increase in saving and postal deposits. In 1965, due to war financing monetary expansion occurred. The regime of Bhutto and Zia-ul-haq (1971-88) is characterized by liquidity shortage, oil shocks, nationalization of financial institutes and banks and in this era currency was devalued by 125%. Inflation was at peak due to government overspending and this situation was controlled by increasing bank rate and liquidity ratio. Inflation is monetary phenomenon in Pakistan.

Qaazi Masood Ahmed (1990) states that during past 25 years, domestic inflation has been controlled while balance of payment worsened, external value of currency depreciated and domestic savings decreased. However, from past few years efforts have been made to make monetary policy transparent by issuing monetary policy statements. Despite of setting targets, communication with public about policy goals is important for successful monetary policy as it enhances and influences availability and effectiveness of monetary policy. Some economist says that now a day, monetary policy is used for managing expectations. If decision makers of State Bank of Pakistan publish minutes of meetings and the reason behind the decisions taken, then transparency of monetary policy can be enhanced. SBP has moved from secrecy to transparency by issuing monetary policy statements. SBP issues monetary policy statements on alternate months to media and also on SBP website. SBP governor issues

monetary policy statement twice a year while on some occasions it is announced through press release in Urdu and English language. SBP also publishes monetary policy information compendium, which explains policy for coming two months. Furthermore, annual financial stability report, quarterly banking system review, state of economy and speeches of the SBP governor are published quarterly and annually. In addition, SBP inflation monitor gives stance of trends in price data.

1.2 Problem statement

In some countries, monetary policy communication has become much challenging due to higher interest rates, slower economic growth, and independency challenges to central banks, political pressure, financial stability, and inflation rates. Pakistan also ranks in the list of developing countries and is facing these challenging problems. More than half of the population is illiterate and, in some areas, there is no access to the internet. Keeping in mind these problems, it is important to analyze how much the Pakistani population understands monetary policy and what the state bank of Pakistan is doing to deliver policy messages to these people.

In addition to other priorities, such as foreign exchange rate stabilization, SBP has a dual responsibility to sustain market stability and foster production growth. Though, the targets for changing expectations between price stability and production growth have not been explicitly prioritized. In order to minimize ambiguity about central bank actions, it is important to have understanding of the long-term goals of the central bank and to prioritize them in the presence of multiple objectives. SBP is explicit in revealing the objectives, but not in prioritizing the various and contradictory goals. The SBP announces inflation and production goals for one year but does not include details on medium-term goals (inflation and output). The goal of transparency (reduction of uncertainty) is not accomplished by disclosing only short-term priorities and, thus, Pakistan's monetary policy in this region is still deficient. There

is no policy of reporting the minutes and the voting history of the meeting of the advisory board. After the policy conferences, only decisions to change the policy instruments are announced.

1.3 Research Gap

In the past, different researchers used to explain the importance of central bank transparency and its communication with general public (Binder, 2008; Dincer and Eichengreen, 2009; Coibion et al. 2019; D' Acunto et al. 2018). They explained the importance of communication on financial sector and how transparency and communication eliminate uncertainty. This study aims to explains the importance of State Bank of Pakistan (SBP) communication with public as SBP communication will increase predictability of SBP's actions and this will also help to reduce uncertainty.

1.4 Research Question

Central banks have changed communication strategy through objective and monetary policy over time. Transparency and central bank communication have become important. So, it has become important to analyze the effects of SBP communication.

1- Does monetary policy communication effects macroeconomics variables?

2- How communication effects market uncertainty?

3- Does communication develop confidence and understanding of the public about the role of SBP in maintaining monetary stability?

1.5 Objectives of the study

This study pursues the following specific objectives to investigate the above-mentioned problem statement:

- To find out the effects and tone of monetary policy communication on market expectations and macroeconomic variables.
- To examine the market uncertainty through communication.

- To investigate the understanding and gain confidence of the public about the role of maintaining SBP monetary stability.

1.6 Significance of study

Efficient monetary policy communication can influence public expectations, reduces uncertainty and offer political accountability for central banks transparency (Stiglitz, 1998; Blinder et al., 2008; Dincer and Eichengreen, 2009). Transparency is the key to independency of central banks as public supports transparent banks (Mishkin, 2004). It's quite naive to assume public having full knowledge of central bank's working and its monetary policy. Some people might take interest and keep themselves up to date but most of them lack awareness. When it comes to SBP, being the central bank of a developing country, it needs to focus on effective communication along with releases of information. This will help private sector gaining knowledge and enabling them to make better and safe economic decisions. . With such knowledge, households and firms can plan better; they can make better saving, borrowing, investment, and employment decisions. Communication is a vital element of SBP policymaking. In line with the SBP Vision, the External Relations Department has been entrusted with implementing a comprehensive, modern, and effective communications strategy, to manage public's expectations as well as play a vital role in stabilizing financial markets.

1.7 Expected Contribution

Blinder (2008) noted that practically all work to date has concentrated on contact between the central banks and the financial markets. It might be time to pay attention to SBP communication with the public. Carlo blinder (2017) says that Communication with the public by central banks has the potential to enhance macroeconomic performance through transparency of central banks. However, for carrying out these advantages, it needs effective communication but the problem is lack of basic knowledge of monetary policy and economic illiteracy due to which large number of people are unable to understand central bank

communication. If central bank influences household expectation through communication, then it can also influence economic conditions.

This study would help to improve and further enhance the transparency and credibility of monetary policy formulation process. Furthermore, this research would help Sbp in reviewing policies and incorporating the key components in order to accomplish a favorable feedback from public and retain them over time.

1.8 Organization of the study

This study is organized in to six chapters. Chapter one consists of the introduction of the study which includes back ground of the study, problem statement, research gap, research questions, objective of the study, significance of the study and expected contribution. Chapter two consists of literature of the study which includes the discussion of the previous researchers on the importance of central banks communication. Chapter three is about theoretical framework while chapter four is conducted on research methodology. It contains introduction, research design, population, sampling and sampling procedures, sample size formula, data collection, data collection techniques, procedure for data analysis and presentation, conceptual framework of the study, estimation steps, econometric modeling, and description of variables, econometric technique and estimation procedure. Chapter five is about model estimation and discussion of results whereas, chapter six is on conclusion and recommendation and limitations of the study.

CHAPTER 2

LITERATURE REVIEW

Over the last thirty years, central bank has changed its communication methods. Central bankers has targeted financial markets to achieve banks objective (minimize financial volatility and shape long term interest rates) through new communication methods in which they announce policy decisions and their future prospects. To influence households or firms' expectations, central bank's main goal is to anchor inflation expectations, but they failed to achieve it in most advanced economies. In low inflation countries, firms and households believes unanchored inflation expectations, they are unaware of monetary policy announcements and what central bank will do in future. These policies remain inefficacious if firms and households' expectations are insensitive to central banks announcement and communication (Coibion et al. 2019; D' Acunto et al. 2018b).

Kokh Yuriy et al., 2019 conducted a survey to determine which means are most effective for policy communication i.e., media, newspaper, political leaders, friends, or other sources to which 20,000 consumers responded. The purpose of this survey was to determine central range of randomized information treatment. The results indicated that most people rely more on friends and coworkers instead of newspaper and social media as most of the households do not read newspaper. Some of them who read newspaper misinterpret policy information. Results also indicated that communication can change consumers expected inflation beliefs. Transparency is the key to independency of central banks as public supports transparent banks (Mishkin, 2004). Efficient monetary policy communication can influence public expectations, reduces uncertainty and offers political accountability for central banks transparency (Stiglitz, 1998; Dincer et al., 2009; Blinder et al. 2008).

Mathur et al., 2019 observed the impact of different features of monetary policy communication on financial markets by using language tools. Results indicated that Indian central bank used difficult language for communication. Efficient Banking system determines major part in customers life and guides that how much to save, spend and invest (Gopalakrishnan et al., 2018). Nowadays, Banks are fulfilling customers' needs with the help of technology (Alagarsamy, Wilson, 2013). Long-term relation with public can be maintained with the help of customer satisfaction, loyalty and quality (Siddiqui, 2011).

Customer satisfaction and retention are positively interlinked with each other and banks should gain public's confidence. If educated customers are not satisfied with one bank, they tend to move to another bank (Cohen et al, 2010). Service quality has a strong link with expected and perceived quality. Countries that understand customer needs move faster towards economic growth and prosperity (Naik et al, 2010). Non-monetary news is broadcasted via news channels, newspaper and through other social media channels daily (Cieslak, 2019).

Tightening shocks by Fed will help to increase output growth and it will also help to decrease unemployment expectations (Campbell et al., 2012). Furthermore, Miranda Agrippino and Ricco (2018) states that sometimes such information misleads monetary transmissions identification. Moreover, a model was proposed that gave both monetary and non-monetary economic information (Nakamura and Steinsson, 2018).

Some studies states that through central banks short term expectations, work is effected (Hanson And Stein, 2015). Some studies differentiate between the stock market shocks and monetary policy shocks (Rigobon and Sack, 2003). Accountability, fairness, transparency and responsibility are basic pillars to corporate governance (Mahenshwari et al., 2017).

Zaheer, Khaliq (2019) investigated monetary policy communication impact from two different perspectives; whether the information released through MPS has same impact as

market and whether MPC gives some guidance regarding future policy rate. The results suggested that communication is key to inflation targeting framework.

With the help of new technology and increase in transparency central bank communicates with public to overcome market expectations (Geraats, 2002). Now a day in decision making process of central banks, transparency plays an important role to communicate with public. Transparency as well as credibility plays an important role and it is as same as performing your activity according to your words (Blinder, 2000). Central bank interaction with household's drops into two categories: one is maintaining accountability and the other is shaping expectations. Maintaining accountability is referred as Central bank possesses political independence while shaping expectations. It means that household's inflation expectations are totally different from financial market competitors and professional forecasters.

Moreover, Jonne, Marianne (2019) examines the efforts made by ECB and Fed which led banks to success in crisis conditions by more focusing on transparency and credibility through predictability**.** This article focused more on the policy maker's communication over the time period of 2007 to 2010 and the documents of central bank communication with upcoming target rate decision. In this era, monetary policy decisions and world economy in US and euro area were affected by financial crisis. By contrasting Taylor-type variables with the median of the published statements and using an ordered probit model central banks focused on the predictability of the target rate changes. They also stated that main objective of central bank was achieved in this highly uncertain period i.e.: to shape credibility by coordinating its words (communication) to its accomplishments.

Janet L. Yellen (2014) discussed that in times of recession and financial crisis how Federal Reserve helps people and communities to get over it by strengthening financial system

and by fostering dialogues in community. By providing credits to families to buy homes and more jobs you can serve your community. When FED lowers interest rates, people start investing instead of saving and as a result business grew. Research found that collaborative leadership, testing ideas, developing better measurement tools, decreasing interest rate and by providing FED's knowledge and skills will improve our lives as well as strengthens financial sector.

The Czech National Bank (CNB) has been conducting monetary policy through transparency and communication, within inflation targeting framework since 1998. Moreover, from 2008 CNB is also publishing the vote casters name on interest rate decisions. Central banks announcement directly influences markets and analysts while public get informed through media. Thus, media's awareness regarding monetary policy decisions is important for central bank's impact on public (Bohm et al., 2012).

Factors that influenced the variability of the favorableness and the extent of coverage of the CNB's monetary policy decisions in the media in the period of 2002–2007 were surprise, exchange rate and interest rate. The media perceived high inflation as failure of central bank. Exchange rate Depreciation increased the favorableness of articles covering the CNB's meetings. More communication with central bank members will cover more articles (Bohm et al., 2012). Transparency is complementary for central bank accountability and it is not possible if banks refuse to inform policy making process to public (Geraats, 2002). Transparency helps people to increase knowledge about economy and policies and avoids pointless criticism on bankers (svensson, 2002).

The Federal Reserve System changed its communication strategy through its objective and monetary policy over time. Central banking system was established in the Federal Reserve Act of 1913, but the problem was it forgot to highlight the central bank's active communication

with public. After the Great Depression and 1946 Employment Act, Fed was more responsible for macroeconomic stability (Judd & Rudebusch, 1999).

The Federal Reserve believed that monetary policy target can be achieved by keeping communication minimal and by surprising financial markets (Mishkin, 2004; Brunner, 1981). When the Full Employment act and Balanced Growth Act of 1978 compelled Fed chair to publish biannual reports of increasing transparency to congress, Federal Open Market Committee (FOMC) members got panic that it may hinder the Committee's ability in imposing plans (Moore, 1990).

Moreover, in 1990 it was understood by the policy makers that fed communication is helpful for better understanding of monetary policy (Blinder, 1998). Therefore, in 1994 FOMC started to release post meeting statements and later initiated its communications to discuss future of monetary policy also known as forward guidance. In august 2013, for considerable time FOMC announced the plans to keep minimal interest rates. It was for the first time when communication was used as monetary policy tool and Fed moved it from secrecy to transparency (Yellen, 2013). Also, central banks are viewed as political independent if there is more transparent communication (Dincer & Eichengreen, 2013).

Interest rates and asset prices are affected by statements followed by FOMC meetings (Hayo, Kutan & Neuenkirch, 2012; Kohn & Sack, 2004). Another study states Reuters do not publish all speeches and central bank news after examining news in late 1990s and early 2000s (Ehrmann et al., 2007; Hayo et. Al., 2010; Neuenkirch, 2014).

Furthermore, studies show that more responses to press conference and statements, results in increase in newspaper coverage of the European Central Bank (Berger et. Al. 2011). Like majority of central banks, early Fed kept infrequent and ambiguous communications due to deemed advantages of reserving the asymmetric information (Mishkin, 2004). Central bank communication is slowly renovated by intellectual and legislative changes.

The Full Employment and Balanced Growth Act of 1978 forced Federal Reserve board chairperson to submit reports to congress biannually (Moore, 1990). In 1979, fed also started to release economic projections semiannually. In 1989, Federal Reserve board published the Beige book; in this book he was not fully in the favor of transparency. In the early 21st century, most of the policymakers agreed to promote transparency through clear and frequent communication (Bernanke, 2003; Woodford, 2001; Kozicki and Tinsley, 2005; Blinder et al., 2008).

Later on, Fry et al. (2000) conducted a survey from 94 central banks about transparency and results indicated that 74% of central banks regard transparency as an important tool of monetary policy. Geraats (2009) gave the idea that central banks should explain policy decisions and publish macroeconomic forecasts. In 1990, New Zealand adopted inflation targeting and many other central banks also followed this manifest except Fed (Bernanke 2003). Then, in 1994, FOMC started to publish post meeting statements and described monetary policy changes in it and later in 2003, announced that low interest rates are for some specific period. For the first time communication was considered as primary tool of monetary policy by expanding forward guidance, introducing 2% inflation and quarterly press conferences, Yellen (2013) considered it as a landmark.

Furthermore, transparency is linked with lower inflation and macroeconomic benefits (Chortareas et al., 2002; Geraats, 2009). Few studies investigate if central bank hides some information, whether it will be helpful in welfare improvement or not (Reis, 2013). A better understanding can be developed between public and central bank policies if central bank reveals excess information (Eppler et al., 2004; Blinder, 2008; Chahrour, 2014). With the passage of time as central bank has increased transparency, central banks recognized this fact that different audience i.e., political authorities, public and financial markets have different interests related to monetary policy (Bernanke, 2003). A well communication strategy is the

one which is fully understood by public, through which People understand Fed goal and what Fed will do to achieve its goals (Evans, 2014).

Swedish Riksbank is ranking among top list of transparent central banks and target group of communication strategy consists of its own members, banks, companies, financial markets, and households (Dincer and Eichengreen, 2009). The Riksbank do this by publishing questions and by answering online all policy decisions (Riksbank Executive Board, 2008). Ann-Leena Mikiver, head of Riksbank communication shares experience of online survey. Less than 20 people gave response. After this disappointing response, bank made video of the same message with governor and 2000 people suddenly responded to it (Central Banking Staff, 2014).

European Central Bank (ECB) policymakers say clarity is as much important as transparency. As audience belongs to different environment and groups so, clarity is necessary to understand revealed information (European Central Bank, 2002, p. 60). To sum up, central banks should adopt those methods and techniques through which people from different backgrounds and environment can easily understand monetary policies.

2.1. Federal Reserve Communication through Media

Previous studies shows that central bank communication largely impacts financial institutions (Kohn et al., 2004; Lucca et al., 2009) but later on it was found that central bank communication also influences households and other public (Blinder et al., 2008). However, a large proportion of public remains unaware about the central banks new announcements if media limits its coverage (Binder, 2017).

Central bank communication with public has important political, economic and as well as social implications. As, most of the central banks are politically independent (Stiglitz, 1998). Most of the households remains unaware of central bank policies so they do not respond much in investment and other future development decisions (Yellen, 2013).

Furthermore, if media coverage is strong and fully covers monetary policies in press, news channels and radio programs then people will easily understand economic concepts and economic expectations (Drager, Lamla and Pfajfar, 2015). Also, weaker central bank communication transmission indicates weaker macroeconomic stability. Neunkirchen (2009, p. 52) noted that media initially filters all financial and economic news then this news comes to public. Whereas households and all public trusts media and are much dependent on media for economy information (Carroll, 2003; Lamla & Maag, 2012).

A large literature about president's leadership is collected through television appearances, press conference, articles, speeches, travel and national address. Now, Fed releases quarterly press conferences through which data can be easily collected (Hager & Sullivan, 1994; J. Cohen, 1995; Edwards et al., 1999; Edwards, 2003; Lee, 2014; Peake & Eshbaugh Soha, 2008; Rottinghaus, 2009; Eshbaugh Soha, 2015). Press decides to publish those items which have both profit driven motive and journalistic norms to make sure audience preference is satisfied (Bennett, 2003; Boydstun, 2013; Mcmanus, 1994).

Carola Binder (2018) presented descriptive statistics by using Pew economic journalism coverage index and Fed communication dataset and observed coverage response in different sectors. Results indicated that President is more prominent in coverage, even in economy related news than Fed chairperson. While in online news, Fed is more prominent than coverage on cable channels. Fed chairpersons meeting, speeches and other communication events can result in more coverage.

Although the Fed is powerful institution and has a strong influence on society regarding credit conditions, shaping inflation and in labor market conditions but most of the audience or a large number of public is unaware of the name of FED chairperson name (Binder & Rodrigue, 2018). Most of the households consider that president is responsible for economic and financial conditions and they are even unaware of the role of Federal Reserve board in the economy

except financial literate consumers. Only financial literate consumers will understand how to make financial decisions (Carvalho et al., 2014; Binder, 2017). Most reader and viewer focus on economy related news, but the different economic topics undergo different media attention. All monetary topics fail to attain same attention (Lewis Beck et al., 2000; Eshbaugh et al., 2005).

A good communication effort by policy makers can highlight major economic issues to media. President uses various ways to impact coverage of news (Peake et al., 2008; Rottinghaus, 2009). President's main communication tool is press conference through which media members can directly communicate to president (Eshbaugh Soha, 2003; Kumar, 2007). Press conferences act as a bridge between government-journalist relationship and public political communication (Ekstorm, 2015).

2.2. Central bank communication in Emerging Economies

Before 1990, central banks conducted monetary policies confidentially whereas transparency was not given much importance. But later on, developed economies has been trying to conduct monetary policy with transparency for better effectiveness of the policy (Geraats, 2006). Central bank reveals all-activities information to the public for the effectiveness of policies.

In order to accomplish these aims, efficient communication is important to the degree that meaningful policy steps are required. But the real issue is how to interact with the central bank? Some politicians have also indicated that it is necessary to convey this flexibility between many individual committee members because it helps markets to consider the consequences of policy decisions and to predict it to them. In the other hand, several scholars have often suggested that such communication is a technique that does not actually provide market participants with greater transparency and shared understanding, so that "with one voice" communication could be necessary for central banks.

Several literature studies suggest that communication may not certainly be desirable in different communications dispersion. The conceptual research work of Morris and Shin (2002) shows that central bank communication will sometimes lead markets opposite directions from equilibrium, but Svensson (2005) states that this claim is based on very stringent validity.

On the other side (e.g. Winkler 2000), emphasizes that if we decrease the degree of openness and common awareness among market participants, more knowledge could be undesirable, especially if it reveals dispersion between members of the committee. In addition, there is a constraint on how much people can ingest results (e.g. Kahneman 2003).

Sorel (1995) sought to analyze the possibility of the nonlinear effects of inflation on economic growth. The data set contains statistics for 87 countries over the period 1970-90 on an annual basis. Population, GDP, trade terms and actual exchange rates are part of the data collection. In order to reduce the CPI and the terms of trade records, the problems with a negative correlation between inflation and growth. The report estimated that structural inflation is 8 percent. This research showed that when a structural break is taken into account, the expected affect of inflation on economic growth increases by a factor of three.

Therefore, correspondence and the intrinsic openness of central banks may not be an end in itself, but rather a process by which the central bank can accomplish its target more precisely (Mishkin 2004). A variety of recent studies have explored the effect of asset price contact and also explores the effect of the comments of Greenspan, Federal Reserve Chairman on the fluctuations of various asset markets and found a major aggregate impact (Kohn and sack, 2004). By analyzing and comparing the influence of contact between the Fed, Ehrmann and Fratzscher (2005c) took a broader perspective.

A variety of recent studies have explored the effect of asset price contact. Explore the effect of the comments of Federal Reserve Chairman Greenspan on the fluctuations of various asset markets and find that they have had a major aggregate impact. Kohn and Sack (2004) By

analyzing and comparing the influence of contact between the Fed, Ehrmann and Fratzscher (2005c) take a broader perspective.

It is found in the paper that conveying the compulsion of monetary policy of the members of the committee is highly productive, but that markets respond drastically only to the economic outlook statements of the FOMC. Other articles Communication's material and dispersion was focused on Jansen and de Haan (2004), Who found that the degree of distribution in the context of communication was of monetary policy of the ECB. Gerlach (2004) discusses the essence of the opening statement in the monthly reports of the ECB implies that the overall interest rate setting of the euro zone can be clarified. Gurkaynak, Sack and Swanson (2005) and Ehrmann and Fratzscher (2005b) Focusing primarily on the success of the Federal Reserve's risk-balance evaluations by May 1999, the Federal Reserve's contact on the FOMC meeting days. Gurkaynak, Sack and Swanson (2005) state that the course of monetary policy should be an influential guide to consumer expectations.

Fratzscher and Ehrmann (2005b). The Commission also claims that the calculation of the risks balance has improved the sector. The capability to expect future options, but that this type of information has squeezed out other sources of information. In addition, Bernanke, Reinhart and Sack (2004), Eggertsson and Woodford (2003) and Woodford (2005) stress that the interaction with the Federal Reserve was highly significant as the US economy was likely to be heading towards deflation and interest rates could triumph the lower zero limit. Blinder and Wyplosz (2004) recommend a larger context for the examination of the working. There is a common agreement that the decision-making of the committee has strengthened the overall consistency of conclusions, somewhat because it facilitates the knowledge and assembling of expertise (Blinder and Morgan 2005; Lombardelli, Proudman and Talbot 2005) and partly because it improves the versatility of Strategy for reacting to shocks of varying riskiness (Sibert 2003, Mihov and Sibert 2004). At about the same stage, it has been seen that when released to

the media, the committee elective record will provide useful insight on future monetary policy decisions (Gerlach-Kristen 2004).

Andres, et al (1999) studied the association between growth and inflation in the OECD countries and addressed whether it opposes this link. In an explicit analytical sense drawn from growth literature, this paper seeks to calculate the long-term inflation costs. The major theoretical conclusions of this paper are that, over the long term, there has never been a clear correlation between current inflation and per capita income. Overall, this observation indicates that the long running inflation costs are undeniable and that efforts to keep inflation under target would be made sooner or later in terms of better long-term performance and the best payoff per capital income.

For four South Asian countries (Bangladesh, India, Pakistan and Sri Lanka), Mallik, et al (2001) attempted to analyze the relationship between inflation and GDP growth. This paper used co-integration and error Model correction to analyze the degree to which inflation is tied to economic growth and vice versa. The empirical data suggests that there is a long-term association in all four countries between economic growth rates and inflation rates. Finally, the research examines that macroeconomic factors are favorably related and that inflation is more prone to changes in the rate of growth than growth to changes in the rate of inflation. They distinguish between individualistic and deliberative committees and central banks, such as the Reserve Bank of New Zealand., where individuals make decisions. A larger aspect of study that has examined the role of committees in the decision-making process is included in their analysis.

Shiwei et al., (2019) investigates People Bank of China's (PBC) communication to chines money market by using three communication indexes. Findings showed that informal communication is more effective as compared to formal one and it also affects money market. Central bank communicates with public via formal and informal ways i.e., speeches,

press conferences and reports to deliver policy issues and monetary policy objectives (De Haan et al. 2007). Policy makers should pay more attention to informal communication instead of formal communication (Su et al., 2019).

Fed communicates to control market expectation which is helpful for economy and financial markets (Blinder 1998). Therefore, frequent communication will help central bank to accomplish its policy objectives and make markets more efficient and will also lessen uncertainty and volatility (Kahn 2007). Numerous researchers proposed that communication effects financial markets both in short and long term (Andersson et al. 2006; Siklos and Bohl 2007; Lamla and Lein 2011; Neuenkirch 2013).

Many researchers focused on formal way of communication such as financial reports, inflation reports and press conferences (Conrad et al., 2010; Berger et al., 2011; Hussain, 2011). Available literature gives us different results about communication. UK financial markets are largely affected by Bank of England's (BOE) minutes and inflation reports rather than banks speeches (Reeves and Swicki, 2007) whereas EU and Pacific markets are largely affected by European Central Bank's (ECB) officials' speeches relative to banks reports and testimonies (Hayo et al. 2010).

On average year, about 10% central banks bear political pressure. Even highly independent central banks face political pressure (Carola binder, 2018). The main purpose of central bank independency is to protect monetary policymakers from political pressure and to lessen inflation (Kydland et al., 1977; Barro et al., 1983; Rogoff, 1985). From past few decades, central banks are having political independence (Dincer and Eichengreen, 2013).

Central bankers and politician's preference about inflation contradicts due to three reasons: 1- due to political motives 2- they do not focus more on outcomes 3- both are different in their constituency (Micheal and Marcel, 2008). Many studies suggest there is inverse relation between central bank independence and inflation based on empirical specification,

measure of CBI and countries sample (Cukierman et al., 1992; Alesnia et al., 1993; Klomp &Hann, 2010).

In developed countries, higher central bank independency is linked with lower inflation (Cukierman et al., 2002). Despite the fact of legal independency of central banks, political pressure may affect inflation outcomes (Carola binder, 2018). Political pressure is not only associated with level of inflation but also with speed of inflation I.e., after a shock how fast inflation returns to its baseline (Willis, 2003).

In several cases, political pressure is for the ease of monetary policy. Whereas, in Venezuela (2013-14) bank was pressurized to delay the release of inflation statistics. About 91% reports figure out political pressure is for ease of policy while 3% describes to tighten pressure. 26% reports show political pressure increases near elections. The reasons behind Political pressure are limited governments borrowing capacity. Political pressure damages central bank credibility.

Pressure is more prevalent when executive is from military background, nationalist or belongs to largest political party. When CBI get lesser public support then without fear of public retribution, Politicians pressurize CBI. Public support shortens when there is more gap between de jure and de facto CBI and financial crises (Blinder, 2012). Drazen (2000) studied government preferences about growth and inflation and analyzed whether government's weightage assigned to inflation and growth changes across time.

When the interest rate is restricted by the zero-lower limit, the potential of a central bank to control macroeconomic conditions is dependent on its capability to credibly communicate policy goals and plans (Yellen, 2006). Literature on political communication and rational inattention are helpful to understand monetarization of policy communication. The rational inattention literature means that the high cost or low benefits will lessen household attentiveness to monetary communication. Economic illiteracy, lack of media transmission is

main cause of high costs. While political communication literature shows that how political institutions helps us to understand monetary policy through media coverage (Sims, 2003; Lamla & Lein, 2006).

Central bankers highlight the significance of communication with the public. The International Monetary Fund (1999) focuses on good governance (transparency and accountability) and household expectations and behavior. Yellen (2014) states that Inflation expectations among economic agents are not homogeneous due to considerable variations between household expectations and those of financial market contributors and experienced predicators (Carroll, 2003).

Blinder et al. (1998) found that, when determining rates, most retailers and wholesalers do not rely on qualified inflation forecasts. Bachmann et al. (2015) argue that they express less desire to invest on durables while MSC respondents predict higher inflation. Similar outcomes are observed by Burke and Ozdagli (2013) using data from the RAND American Life Panel, with the exception that customers with higher predicted inflation are more likely to buy a vehicle. Household research in Germany, Japan and the Euro zone, however, find the reverse (D'Acunto et al., 2015; Ichiue and Nishiguchi, 2015; Duca et al., 2016). Central bank interaction with households will get the greatest impact if it influence household expectations and how to understand macroeconomic dynamics. Several factors like consumers economic and financial literacy, media coverage plays an important role in understanding monetary policy communication (Lusardi, 2008; van Rooij et al., 2011).

Fry et al. 2000 conducted a survey 94 central banks and results showed that seventy four percent (74%) banks examines transparency to be essential part to monetary policy. For seventeenth century operations, purpose and functions of central banks have evolved over time.

Central bank transparency is up to certain level. At given level, more transparency is needed for improvement of inflation forecast in private sector. People may wrongly perceive if

they are unable to understand monetary policy. Carin investigates in their paper whether further increase in transparency is good for central banks or not and they focused on aver all optimal level of monetary policy transparency. Some banks have minimum transparency, and this transparency is beneficial for them. This leads to a higher standard of private sector estimates, leading to a lower persistence of inflation. For central banks, it is not good to become complete transparent.

A high degree of transparency results too much in awareness of central bank transparency and confusion. Central bank transparency is related to private sector forecasters. At lower transparency, more information providence can improve private sectors inflation forecasts. Transparency more than certain level might worsen forecasts as more transparency results in in uncertainty. If too much information is available, agents might perceive the quality of their forecasts to be worse. and it may lead to excess information and confusion.

The potential economic implications of transparency in financial institutions have been debated by policymakers and scholars. The central bank's openness debate is a long and ongoing story. Most analytical research suggest that changes in transparency from an economic point of view are desirable and have resulted in increased inflation perceptions and improved monitoring policies (van der Cruijsen and Demertzis, 2007), In the transparency debate, whether it is beneficial for central banks to improve their degree of transparency, van der Cruijsen and Eijffinger (2010) use complexity and confusion/information overload for the sustainability of maximum transparency. Transparency often results in improved economic results, while other types do not. Ehrmann and Fratzscher (2009b) explain that restricting contact is a valuable way to avoid market uncertainty and speculation in the week before meetings of the Federal Free Market Committee.

Optimal degree of transparency is supported by both uncertainty and information overload (confusion). Morris and Shin (2002) offer another reason in favour of restricting the

degree of openness of the central bank, arguing that it could lead to uncertainty and damage by offering excess information to the public. They provide both public and private sector knowledge in their model and co-ordinate their activities with other officers. The adverse effects of public knowledge were seen in the endogenous model. Providing more information and transparency can lead to undesirability as it worsens public information.

Monetary policy has considerable changes from last two decades in East Asia. After 1997 crisis, many Asian economies have moved to flexible exchange rate. Many banks like the central banks of Indonesia, Korea, the Philippines, and Thailand uses inflation rate to target monetary policy. other banks use price stability to reach to their monetary policy target. A good understanding of monetary policy helps central bank to shape desirable inflation.

Ben S C Fung (2017) tried to identify monetary policy shocks in East Asia to observe monetary transmission mechanism. For implementation of monetary policy, many central banks are using market-based measures. Better understanding of monetary policy is important for financial as well as public. The Fry et al. (2000) dataset is used by Chortareas et al. (2002) to build a transparency index and found that improved transparency is correlated with lower inflation in a cross-section of 82 countries, influencing other factors like CBI.

In a similar analysis (Chortareas et al., 2003), the same authors argue that a lower sacrifice ratio (unemployment cost of disinflation) is correlated with improved openness. Dincer and Eichengreen (2007) argue that transparency in a pooled cross-section time series regression eliminates inflation uncertainty. Geraats, 2002 states that transparency is beneficial when information asymmetries are the main cause of inefficiencies in the economy but can be costly where the central bank is able to offset other inefficiencies by exploiting its informational advantage. More transparency has larger implications on macroeconomic variables. Svensson (2001) and Geraats (2002) states that the demand for transparency increases both for accountability and legitimacy when central banks are more independent.

Via coordination and accountability activities, central banks aim to improve monetary policy effectiveness to influence perceptions of future policy decisions. Using the bank run paradigm, Diamond and Dybvg (1983), the immediate publication of private knowledge regarding risks to financial stability is unacceptable.. Ehrmann and Fratzscher (2007) examine Fed communication and future policy projections and conclude that more detailed or explicit communication will make policy more stable, concentrating on individual central banks.

Gerlach-Kristen (2004) finds that the release of MPC voting documents by the Bank of England has led to making monetary policy more predictable. In 2006, analyzes the actions of inflation estimates of the private sector at the time of IT adoption in eleven countries to assess whether IT has the transparency benefits reported by its proponents. It appears that IT adoption enhances the forecasting accuracy of the private sector, particularly the worst forecasters, in line with the distribution of a more reliable public signal of potential inflation. The results suggest that the implementation of inflation targeting is related to a convergence of private sector prediction errors. Monetary policy transparency is disclosure of all policy related news from central bank to economic agents (Geraats, 2002). Transparency needs disclosure of policy from objectives to target and from setting policy instruments to achieve target.

Furthermore, Wasim Malik, Musleh-Ud din (2008) observed SBP transparency by Eijffinger and Geraats index and analyzed that SBP is least transparent and is lagging the advanced central banks. SBP needs effective communication with public as there is lack of awareness regarding monetary policy.

Table 2.1: Summary of Earlier Research

S. No	Authors/ Year	Description of study	Results
1.	Carola Binder (2017)	This article focused on the basic purpose of cooperation between central banks, this is to stabilize expectations of inflation.	The stablization of consumer expectations increased, When the Fed announced the goal, it was particularly to inform the customers.
2	Jonne O. Lehtimäki, Marianne Palmu (2018)	In monetary instrument modifications, the correspondence of central banks may be helpful.	In spite of the rapid rise in economic volatility, predictability was surprisingly well achieved at the central bank level during the financial crisis.
3	Jiří Böhm, Petr Král, Branislav Saxa (2012)	Analysis by the Czech Central Bank (CNB) of the favorable ratings and degree of media attention of monetary policies in the period 2002-2007.	CNB measures that disturbed financial sector were not interpreted adversely by the public and the shifts in interest rates improved both the favorability and reach of media attention.
4	Carola Binder (2018)	To evaluate fed media dissemination and coverage response from 310,565 news reports to contact events	In the markets where fed coverage is most missing, more regular press conferences could improve the visibility of Fed news.
5	Janet L. Yellen (2014)	What is the Federal Reserve doing to help our country stabilize from the Great Recession and the financial crisis?	Good policies strengthen welfare and foster a stronger economy.
6	Shiwei Su, Ahmad Hassan Ahmad, Justine Wood (2019)	This paper discusses to what level that the Evidence from China's Citizens Bank of China (PBC) impacts the Chinese financial market from 2010:01 to 2017:12	Informal messages, such as speeches by bank leaders, will pay much more attention to decision makers and market analysts than structured ones, such as the bank's summary and minutes.

7	Carola Conces Binder (2018)	This paper investigates from 118 central banks whether they face political pressures. Data is taken from 2010-18.	Approximately 10 percent of CB is under political pressure. Pressure is related with greater inflation,
8	Michael Ehrmann and Marcel Fratzscher (2008)	When and why do the expectations of policymakers and central bankers regarding monetary policy differ?	Based on different priorities, policymakers prefer lower interest rates than the central bank and politicians impose less weight on inflation and more on the result.
9	Manuela Moschella, Nicola M Diodati	This research examines the current political conditions underlying differences within the European Central Bank's monetary committee.	The findings thus show that the role of central bankers is influenced not only by economic factors, but also by internal political concerns.
10-	Alan s. Blinder, Michael Erhmann	Communication has been an increasingly significant feature of monetary policy over the past two decades. A vast new academic literature on central bank contact has been spawned by these real-world innovations.	Interactions can be an important and effective aspect of the toolkit of the central bank, as it can drive capital markets, improve the expectedness of monetary policy decisions, and theoretically allow central banks to do this. macroeconomic purposes.
11	Wasim Shahid Malik, Wasim Shahid Malik	This paper analyzes central bank (SBP) monetary policy openness using the Eijffinger and Geraats (2006) index.	The results show that the SBP is 4.5 out of 15, which is lower than any central bank ranking in Eijffinger and Geraats (2006). In terms of political and operational transparency compared to other central banks, the SBP is at par with some of the central banks, but ranks behind in all other respects.
12	Micheal Lamla and Dmitri Vinogradov	This paper reflects on the understanding and perception of interest rates for consumers and inflation and trust.	Oriented investors tend to have lower assumptions and aspirations, greater morale and fewer mistakes, at least in terms of perceived inflation.
13	Joseph Stiglitz	Two concerns are illustrated by this report. That is, monetary policy concepts in a low-inflation	Conclusions drawn were Monetary policy matters, A central bank must be responsible and responsive to democratic processes.

		world and problems related to the structural mechanisms under which monetary policy is developed in a democratic society.	
14	Alan S. Blinder, Michael Ehrmann, Marcel Fratzscher, Jakob De Haan, David-Jan Jansen	Communication has been an increasingly significant feature of monetary policy over the past two decades.	The evidence indicates that touch can be an important and efficient part of the central bank's collection of instruments, as it can drive financial markets, increase the predictability of monetary policy decisions and, in theory, help central banks achieve their macroeconomic objectives.
15	Alan S Blinder	Central banks, which used to be so opaque, are talking about their monetary policies more and more these days.	No opinion has yet arisen about what constitutes either in quantity or essence a "optimal" contact approach.
16	Sylvester C.W. Eijffinger, Petra M. Geraats	The transparency of central banks has been challenged by the fact that transparency is a qualitative term which is difficult to quantify.	This paper presents a Monetary Policy Openness Index containing the diplomatic, fiscal, procedural, political and organizational facets of central banking.

CHAPTER 03

THEORETICAL FRAMEWORK

The research on central bank communication is constantly expanding and it has been devolving in different forms across the world. Most of the central banks transmits information or communicates through press conference. Issuing minutes of meeting also plays a significant role in the communication of decision-making committee. Inflation expectations are affected through monetary policy reviews and forward-looking inflation reports. Announcement of monetary policy meeting schedules brings confidence and certainty to the market (Zaheer et al., 2019).

The State Bank of Pakistan (SBP) has a dual role to play in promoting economic growth in Pakistan i.e., maintaining financial/monetary stability and optimal utilization of resources. To achieve these goals, it is important for SBP to make policy communication credible, clear and simple. SBP has attained a series of milestones on the path to greater transparency and openness in the making of monetary policy and steadily improving its communication in accordance with worldwide best practices, especially in the last decade. Some important features of Sbp communication is frequent assessment of economic conditions, economic outlook, speeches and press conferences. Monetary policy framework and Sbp communication has been improved a lot with the passage of time.

The SBP Act (1956) was revised in 2015 to introduce the statutory Monetary Policy Committee in order to further improve the SBP's independence and add transparency to the policymaking process (MPC). The Monetary Policy Committee (MPC) was formed with six internal and three external members to design, support, and approve monetary policy. The formation of MPC has been widely acknowledged as a significant step toward the development of an independent and autonomous central bank (Blinder, 2004; Vandenbussche, 2006). However, in terms of international best practices, the SBP has yet to complete certain functions. For example, one of

them is the need to have a timetable of monetary policy meetings for at least a year. Furthermore, the central bank will consider disclosing the names of MPC members as well as their preferred method of voting in decision-making.

MPS is released on alternate months to express the MPC statement, which includes the policy rate decision as well as a specific discussion of economic trends and developments. Minutes of meeting are published after one moth. It covers multiple statistics on the MPC's decisions as well as the voting patterns of its members while names of the MPC members have not been revealed yet (Zaheer et al., 2006).

Theoretical research on who can have autonomy over monetary policy can be divided into two categories that can be implemented. First one is contract between government and central banker. The world has learned that entrusting the conduct of monetary policy to outstanding experts, especially hawks rather than doves, has yielded positive results. These results can be observed in lowering inflation persistence (Lin and YE, 2009). Rather than assigning to doves it should be assigned to hawks with terminal degrees in economics, especially with a background in monetary policy, as well as a past record of research excellence and strategic experience. This will immensely benefit the SBP's monetary policy activities, as well as its effectiveness and transparency, in achieving intended goals (Hayat, Z., 2017).

Interest rate outlets play a vital role in an economy's monetary policy publicizing process. Interest rate, exchange rate, net exports, GDP growth, large scale manufacturing, domestic credit these all are important factors but it is difficult to analyze which one matters the most. Selection of these channels depends on the state of the economy.

Interest rate forecasts and financial asset prices fluctuate as a result of central bank communications, which provides feedback to market participants (Reeves and sawicki, 2007).

Mishkin (2007) stated that when money supply increases, policy rate decreases. So, that consumer can take out loan easily.

As interest rates rise, households perceive a spike in inflation caused by a monetary shock so with the rise of interest rate, they tend towards credit instead of cash (Lawrence, 2002).

In Pakistan when monetary policy is announced financial markets and private sectors both are affected. In this study, we are trying to figure out the impact of SBP communication on public. Sbp communication has a significant impact on domestic credit and on large scale manufacturing (Gurkayank, sack, 2018).

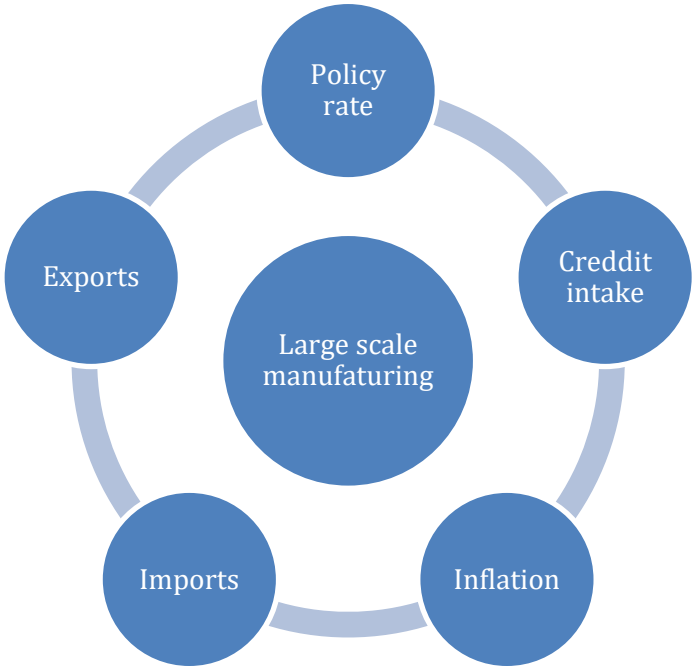


Figure 3.1: Theoretical framework

Chapter 04

RESEARCH METHODOLOGY

4.1. Introduction

According to the aim requirement as well as objectives of this study, research methodology is fundamentally a complete proposal for performing research. By considering these broad objectives, specific research tasks have been developed by research which shows research purpose as well as results. This chapter explains the planned methods and analysis as well. It includes research design, sources of data collection, econometric modeling, Description of the variables, econometric analysis, and the estimation procedure. This chapter also discuss the method and procedure of sampling design collecting, data and analyses. In order to determine that whether people understand Sbp monetary policy, this chapter includes the brief explanation of the study design, population, and sample size, sampling procedure, data collection techniques, data reliability, theoretical and conceptual framework and procedures of the data analysis.

4.2. Research Design

Research design is a structure of methods and techniques chosen by a researcher to integrate various research components in a logical way to effectively manage the research problem. This offers insights into how work can be performed using a common approach. Many researchers have a list of research questions to be answered and these questions can be achieved through research design. It not only shows the data collecting method but also explains the logic behind it. In this research, data from monetary policy statements (2005-2021) are used, to check the connection between policy rate, large scale manufacturing, credit intake, exports, imports, inflation, and trade deficit. 78 observations are utilized in the dataset, as monetary statements are released six times a year but in 2006, 07 and 08 they were released twice a year. In 2009, MPS were released after every three months. This data is sufficient for the analysis of regression. Study design is the structure of the entire study and explain the idea

of conducting the whole study. This study use to analyze the descriptive survey for the collection of the data from the respondent. Descriptive survey design to study the hypothesis on awareness and understanding of the monetary policy. It is also very useful for generalizing the result form the sample of the population so that the idea can made from the individualities, norms of the respondents and qualities of the population. Descriptive study design is often used for the study the behavior of the respondents on the variables that are studied for the research.

This Study also comprises of quantitative research that includes survey questionnaires to gather primary data. Questionnaires were distributed as hard copies as well as in soft form through Google Docs. This provided convenience for the participants and saved time and cost.

4.3 Population

According to Fraenkel and Warren (2002), population indicates the overall set of the target area where individuals are working with the same nature and having same characteristics. This study is interested in the data from different cities of Pakistan to analyze that how much people are familiar with monetary policy.

4.4. Sampling and Sampling Procedures

According to Amedahe (2004), sampling is the process of collecting data from the chunk of population that can explain the behavior of the entire population in the study. The general idea taken by many researchers is that the greater the sample size, lower will be the risk of error occurrence in the sampling. Empirically it is evident that if the sample is true representative then the size of the sample doesn't matters. The actual sample size estimated by the formula with 5% margin error is 384. For this study targeted sample size is 305. During the study, we faced no-response problem and adjust our sample size according to the particularly higher management renamed reluctant to provide response.

Sampling techniques used in the study are convenience non-random Sampling techniques. Convenience non random sampling is used to collect the data from the group of people which are easy to contact and reach.

4.4.1. Sample Size Formula

Assuming the distribution of proportion to be normally distributed the actual population size doesn't matter at all in calculation of sample size. To get the optimal sample size our calculation is based upon margin of error and level of confidence. The contemporary empirical studies use 5% margin of error with 95% confidence level. In the calculation provided below we will present optimal sample size. Following self-explanatory table and formula we can get optimal sample size.

Figure 4.4.1: sample size formula

Level of Confidence (LOC)	Recommended value: 1.96 (for 95% confidence level)
Margin of Error, desired precision (MOE)	The smaller the margin of error, the larger the sample size needed. Recommended value: 0.05
Baseline levels of the indicators, Expected true Proportion. (Ind)	Recommended value: 0.5

Empirically it is evident that if the sample size is representative then sample size doesn't matter. The actual sample size estimated by the formula with 5% margin error is 384. During the study we faced non-response problem and adjusted our sample size according to particular the higher management renamed reluctant to provide response. So, the sample size for this study is 305 due to the non-response problem.

4.5. Data Collection

This study adopted the applied primary data in order to explain the familiarity of monetary policy. Questionnaires were distributed as hard copies as well as in soft form through Google Docs. This provided convenience for the participants and saved time and cost.

4.6. Data Collection Technique

For the study data is collected from the different areas in the time duration of 1.5 month. Data was collected from the people through questionnaire. Data was collected from the respondent through self-interviews based on the questionnaires. Data was then organized for the processing and analyzing.

Data was obtained from the response of the respondent's ant then examined by the way of sorting the data coding in the data and give order to the response in the SPSS.

4.7. Procedure for Data Analysis and Presentation

Data is then used for the analysis of the variables and frequencies while percentages of the respondent are used to check the influence of the variables. Statistical Package for Service Solution (SPSS) were used to analyze the other statistical analysis for the data. Qualitative approach was used to code the data in the form of text. 5-likeret scale were used for the question and code in the SPSS. Therefore, qualitative techniques were used to interpret, collect, present, analyze and conclusion of the data.

Correlation and Regression analysis are conducted between the variables. Regression analysis explains the casual relationship between the variables. Values of the regression analysis depicts that the one percent change in the independent variables explains how much of the variation in the dependent variable. It also explains the overall change of the model through the value of R2.

4.8. Conceptual Framework of the Study

Conceptual framework of the study indicates the relationship of the variables between themselves. As study includes the people awareness and understandings about awareness of

monetary policy analysis. People awareness, understanding is used as an independent variable. Conceptual frame work of the study explains the relationship of the variable.

In this section: first of all, the study examines data collection sources and ethical procedures; after this, it also presents the econometric modeling and description of the variables used in this research; and at the end, presents the econometric analysis.

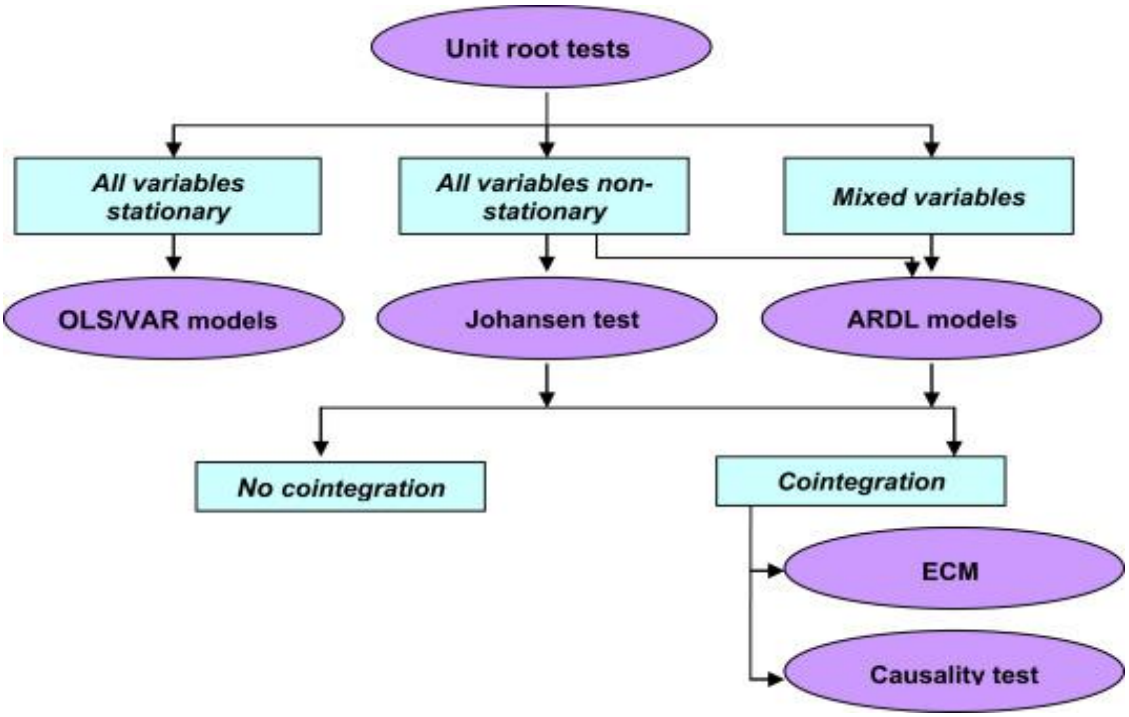
4.9. Steps to estimation of ARDL Model

By following these steps, we will apply certain econometric techniques for the estimation of ARDL model.

1) Specify the model(s)
2) Descriptive statistics
3) Performing unit root test
4) Estimate the model(s)

Primarily, the study specifies the model to be used in this present study; and presents the summary of the statistics; and then performs a unit root test. If the p-value is more than 5 percent of significance level, we do not accept the null hypothesis and utilize the estimator. We will apply ARDL model. The estimation technique of the ARDL model for data analysis will be applied, if the variables are stationary at the level I(0), and at the first difference I(1).

4.9.1 Framework to select econometric techniques for estimation.



4.10 Data Source

Time series data is used over the period 2005 to 2021 to statistically explore the connection between the specified variables. Bimester data is used with 78 observations which are suitable for the time series data regression analysis. The analytical information comes from secondary sources, "Monetary Policy Statements" and "Monetary Policy Compendium". Monetary Policy statements (MPS) collects data on policy rate, credit intake, trade deficit and inflation, while data on imports, exports and large-scale manufacturing are acquired from Monetary Policy Compendium (MPC). Large-scale manufacturing is used as a proxy of GDP. Large Scale Manufacturing (LSM) has been used as the dependent variable (DV) for the present analysis, while policy rate, credit intake, trade deficit, inflation, imports and exports are used as independent variables (IV). All suggested independent variables are expected to have a significant connection to economic growth. The overall functional shape of model is given below:

$$LSM = f(PR, CI, M, X, TD, \pi) \quad \text{.....Eq.1}$$

Table 4.10.1: Provides Variable Labels, Description, Measures and Data Sources.

Variable	Description	Measures	Sources
PR	Policy Rate	The policy interest rate is an interest rate fixed by the reserve bank (i.e., the central bank) to influence the production of the major monetary variables in the economy (e.g., consumer prices, exchange rate or credit expansion, among others).	Monetary Policy statement
CI	Domestic credit to private sector	Credit intake is also known as domestic credit given to the private sector through banks, which represent the economy's investment pattern.	Monetary Policy statement
LSM	Large scale manufacturing	The dependent variable used in this model is Large-scale manufacturing. Large scale manufacturing is used as a proxy for the Gross Domestic Product (GDP). Production changes and structural changes of large-scale manufacturing industries (LSMI) are measured through Census of management industry (CMI). It includes data on input and output values, revenue generated by the census, contribution to GDP, Fixed assets, stocks, the cost of employment, housing and industrial taxation.	SBP data Centre
Π	Inflation	This inflation rate constitutes the backbone of both central banks' decision-making mechanisms, which also include decisions on stable prices, and also on financial stability. "Inflation is determined by consumer price index (CPI), which represents the annual percentage rise in cost of purchasing a basket of goods and services which can be set or altered at a prescribed time, like annually. Impacts of inflation on per capita GDP may be negative, indicated by Laspayers formula (World Bank, 2017).	Monetary Policy Statements
M	Imports	An import is a commodity or service obtained in one country that has been manufactured in another country. In an international trade, imports and exports are the only major components in it. When the sum of the imports of a country exceeds the export earnings, the country has a negative trade balance, often referred to as a trade deficit.	Monetary Policy Compendium
X	Exports	In raising the Economic Growth, exports are the key component for any country. In long term it has been indicated that there is an equilibrium relationship among export, imports and Economic growth and many researchers and econometric models have proved the equilibrium relationship.	Monetary Policy Compendium

TD	Trade deficit	A trade deficit suggests that a nation imports more goods and services than it exports. An excessively simplified interpretation suggests that this will generally harm the deficit-running country's job production and economic growth. Economists also vary on the large impact on unemployment of trade deficits. Some believe that imports inevitably decrease employment opportunities, while others point to offsetting employment growth by the same trading links in other industries.	Monetary Policy Statements

4.11. Econometric Modeling

Single equation model: To empirically investigate the relationship between LSM, CI, X, M, PR, TD and π, where LSM is dependent variable while CI, X, M, PR, TD and π are independent variables.

$$LSM_t = \alpha_\circ + \alpha_1 PR_t + \alpha_2 CI_t + \alpha_3 \pi_t + \alpha_4 X_t + \alpha_5 M_t + \mu_t$$

Where,

LSM_t= Large Scale Manufacturing

PR_t= Policy Rate

CI_t= Credit Intake

π_t = inflation

M_t= imports

X_t=Exports

μ_t = error term

t = Years (2005, 2006, ……., 2021)

α_0, α_1, α_2, α_3, α_4 and α_5 = Partial slope coefficients.

4.12. Description of the Variables

In this section, the study introduces the variables that are used in the study. Generally, different studies utilized these variables in literature. In this section we will also discuss the

factors that affect Large-scale manufacturing, i.e., control variables, according to preceding studies, the following variables are explained as follows:

4.12.1. Large-scale Manufacturing

The dependent variable used in this model is Large-scale manufacturing. Large scale manufacturing is used as a proxy for the Gross Domestic Product (GDP). Production changes and structural changes of large-scale manufacturing industries (LSMI) are measured through Census of management industry (CMI). It includes data on input and output values, revenue generated by the census, contribution to GDP, Fixed assets, stocks, the cost of employment, housing and industrial taxation. It considers the technological advancements and launches the new industrial goods and services (Maria Demertsiz, 2019). In the early years, the sector worked in various policy contexts, spanning from outright import substitution which is now more liberalized and substantial in the recent years mainly driven by concerns about improving the productivity of the manufacturing sector, which is key to maintaining greater competitiveness. (Tariq Mehmood, 2006).

4.12.2. Credit Intake

Credit intake is also known as domestic credit given to the private sector through banks, which represent the economy's investment pattern. In the World Bank Report (2013), a wide body of research has demonstrated that expansion in the financial sector plays a significant role in economic growth and development. It encourages economic development and growth through the redistribution of capital and technical advancement by raising the rate of savings, Mobilization and accumulation of investments, while developing the knowledge on investment, facilitation and promotion of international capital inflows, and optimization of capital allocations. Countries with stronger financial systems appear to expand more quickly over long stretches of time and a broad field of studies has demonstrated that this effect is significant: Financial Development is not only product of economic growth but it contributes to the economic growth (World Bank Report 2013). In the absence of a well-functioning and

well-systematized financial market, no country can develop and boost the living standards of its population. Banks in Pakistan comprise of 85–90% of the total financial sector. A stable and strong banking system is therefore significantly related to Pakistan's economic growth and development progress (Ashin Shahid, 2015).

4.12.3. Policy rate

The policy rate is the other name of interest rate that is announced by the monetary authority (i.e., the central bank) to affect the evolution of the key monetary variables in the economy (e.g., market prices, currency exchange rates, bank lending, etc.). The amount of the existing interest rates in the economy is determined by the policy interest rate, as it is the price at which private agents, mainly private banks, obtain credit from the central bank. The financial products offered by the banks to customers at an interest rate which is equal to the market policy rate at that time. The pass-through rate can fluctuate constructed on whether fixed rates or variable rates are the interest rates of the underlying mortgages. (The monetary policy, financial instruments, or T-bill rate)

4.12.4. Imports

An import is a commodity or service obtained in one country that has been manufactured in another country. In an international trade, imports and exports are the only major components in it. When the sum of the imports of a country exceeds the export earnings, the country has a negative trade balance, often referred to as a trade deficit. Imports have a huge influence on the economy. The relationship between import, export (also known as international trade) and economic growth are the most popular areas that reflects the attention of policymakers and researchers. The main reason behind this attention is that every country's key priority is to raise GDP and enhance the standard of life for its people (Gungor Turan, 2014).

4.12.5. Exports

In raising the Economic Growth, exports are the key component for any country. In long term it has been indicated that there is an equilibrium relationship among export, imports and Economic growth and many researchers and econometric models have proved the equilibrium relationship.

Ali F. Darrat (1987) export-led hypothesis of Ronald Findlay (1984) and Anne Krueger (1985) has been studied by Ali F. Darrat (1987); the hypothesis implies that higher exports boost the process of economic growth. This empirical results testified by Ali F. Darrat (1987) has also shown that exports do not impact the economic growth of Hong Kong, Korea, Singapore and Taiwan.

No causal effect is indicated from exports to economic growth in each of the four nations, based on the Granger causality measure.

4.12.6. Inflation

The independent variable used in this model is the annual Inflation rate taken as consumer price index (CPI). “Inflation is determined by consumer price index (CPI), which represents the annual percentage rise in cost of purchasing a basket of goods and services which can be set or altered at a prescribed time, like annually. Impacts of inflation on per capita GDP may be negative, indicated by Laspayers formula (World Bank, 2017).

Ajaz and Ahmad (2010) examined that “Changes in the sense of macroeconomic policies, it plays a significant role in increasing government revenue, inflation is considered as a good indicator used to gauge the monetary policy environment. It encompasses the macroeconomic policy effect.

This inflation rate constitutes the backbone of both central banks' decision-making mechanisms, which also include decisions on stable prices, and also on financial stability.

The European Central Bank's target rate decisions were found to be mainly relevant to changes in inflation perceptions and central bank coordination, meanwhile the decisions of the Federal Reserve were focused on changes in the production deficit and communication gap. (Lehtimaki, 2018). The consumer price index is also included, since the main purpose of every central bank is price stabilization (Maria, 2019).

Li (2000) implies an inflation effect as the central bank (CB) raises the money supply. If a monetary shock commences; consumers expect a spike in the inflation rate and therefore turn to credit instead of cash as interest rates increase. Nevertheless, real output production rises in the next time period (Lawrence, 2002). Abdul Qayyum (2006) study illustrates that inflation is strongly related to the increasing supply of money; thereby, in the context of Pakistan, endorsing the proposed monetarist theory. This means that it is possible to reduce the inflation rate in Pakistan by increasing the interest rate.

4.13. Model Selection and Econometric Analysis

This study utilized the ARDL model for the data analysis. Before proceeding to methodology and final analysis of data, few initial tests are applied on data to check its suitability and validity for analysis. Unit root tests will be applied on data to check the stationarity of the variables.

4.13.1. Unit Root Test

Before applying ARDL analysis, we will check the stationarity of the variables to avoid a spurious regression problem. Common ways that are used to avoid spurious regression problem are through take first difference and time pattern regression. The first differentiation and time pattern regression are standard ways used to prevent spurious regression issues. For I(1) time series, first differentiation is sufficient, while for trend stationary I(0) time series, time trend regression is used. Unit root tests may be used to evaluate pattern data that is first differentiated or regressed in deterministic time functions to make data stationary. In addition,

economic and financial theory also implies that long-run balancing relationships occur between non-stationary time series variables. While these variables are I(1), then to model these long term relationships, cointegration techniques can be used.

4.13.2. ARDL Estimation

In this study ARDL (Autoregressive Distributed Lag) model is used, in order to analyze the relationship between large scale manufacturing, Policy rate, Credit intake, Imports, Exports and Trade deficit. This model was originally developed and introduced by (Pesaran, Shin, 1999), and it underwent several modifications and was redefined by (Pesaran, Shin, & Smith, 2001), since then, ARDL has been used and it is preferred over traditional methods as its approach towards cointegration analysis among variables and the short-run and long-run estimates could be estimated separately. Also, in contrast to other tests, such as Johnsen Cointegration test by (Johnsen, 1991), and Engle and Granger test, by (Engle & Granger, 1987), this method could be used for determining relationship among variable that are either 1(0) or 1(1) or a mixed of 1(0) and 1(1) variables.

Following are the advantages of ARDL: (i) (Alam & Quazi, 2003) examined that in ARDL procedure estimation is possible when independent variables are dependent. Moreover, in the ARDL model endogeneity problem is less and is residual correlation free. (ii) For both endogeneity and residual correlation, ARDL model is corrected for the selection of appropriate lags showen by (Pesaran & shin, 1999). (iii) As compared to the single equation method one of the most important advantages of ARDL method is that in co-integration analysis, for example, (Engle & Granger, 1987) had faced the problems of endogeneity whereas the ARDL method can make a distinction between dependent and independent variables. (iv) An additional advantage of ARDL method is that yielding consistent estimates of the long-run parameters that are asymptotically normal irrespective of whether the variables are 1(0), 1(1) or mutually integrated" (Pesaran and Pesaran, 1997). Another advantage of this test as

compared to the traditional methods is that ARDL can make integration of short-run impact of concerned variables with long-run equilibrium through Error Correction Method (ECM) without the loss of information in long-run. Different optimal lags for each of the variables could also be determined by ARDL (Pesaran et al., 2007). Further, other traditional techniques are sensitive to sample size, whereas ARDL can provide robust and consistent results with even small sizes (Pesaran & Shin, 1999; Pesaran et al., 2007; Adom, Bekoe, & Akoena, 2012).

Following are the assumptions of ARDL:

1) Whenever the variable is stationary at second difference I(2), then we will not apply ARDL.
2) Appropriate lag selection.
3) The error should be serially exogenous.
4) Dynamically stable model.
5) Whenever the variables are stationary at level 1(0) as well as at first difference 1(1) then we will apply ARDL.

The study does not apply ARDL, if one variable is stationary at second difference 1(2). According to Pesaran et al. (2001) and Narayan (2005), "In case of second difference, ARDL approach makes no sense, because if a variable is stationary at second difference 1(2) then the computed value of F-statistics can no longer be valid".

ARDL can be specified for a simple model of a single equation where LSM_t is the dependent variable and is a vector of independent variables as presented by (Pesaran & Shin, 1999; Pesaran et al., 2001).

4.13.3. The Estimation Procedure

The study will use different techniques of empirical analysis to assess the relationship between Large-scale manufacturing, policy rate, credit intake, exports, imports and trade deficit. Firstly, we'll present a summary of statistics. After that, augmented dickey fuller unit

root test will be used to check stationarity. In the study, we will apply ARDL test when Unit root test results are significant at level and first difference.

CHAPTER 5

MODEL ESTIMATION AND DISCUSSION OF THE RESULTS

5.1. Introduction

In this chapter, data analysis is applied on selected data to generate results and interpret them in a comprehensive manner. Initially, the study presented the summary of statistics of dataset that shows and explain the characteristics of each variable in the model. Causality Test is used to check the direction of relationship between the variables. Moreover, in the study, we performed unit root test to check the stationarity of variables. Some variables were significant at level while some were insignificant. To make them significant, 1st difference is used. As, some variables indicated significance at level while the rest were significant at 1st difference, ARDL model is applied. And lastly results are discussed with reference to the other results that were found in the previous literature.

5.2. Summary Statistics of Dataset

In order to explain what happened in the survey, descriptive statistics are numbers that helps to summarize the results. Table 5.2.I presents the number of observations (N) and the summary statistics (Mean and median values, maximum and minimum values, and standard deviation values) for all variables that will be used in our empirical analysis. This data set includes 78 observations for all the variables. Some of the values were missing from variables that have been estimated through interpolation. Data was collected from last sixteen years having bimonthly observations for the period from 2005 to 2021.

Table 5.2.1: Summary statistics

Variables	Mean	Median	Maximum	Minimum	Std. Dev.	Observations
Manufacturing	3.828	4.4	13.2	-8.2	4.06716	75
Policy Rate	9.296	9.5	14	5.75	2.61201	75
Inflation	7.83827	7.9	19.56	-0.4	4.25943	75
Credit Intake	22.7972	17.957	55.8	15.305	12.0518	75

Exports	7.75373	8.5	17.5	-13.4	5.89676	75
Imports	12.2636	15.3	45.2	-15.2	10.4234	75
Trade Deficit	4.23053	4.4	16	0.41	2.92457	75

Source: Author's own collection

In table 5.2.1, the descriptive statistics are presented. The dependent variable LSM (growth percentage) of the research is measured having mean value of 3.828000 and standard deviation of 4.067158. Standard deviation is a measure of variability that minimizes outliers' impacts. It also calculates variance of a sample (CB Thompson, 2009). The independent variable of the research is policy rate. It has a mean value of 9.296000 and standard deviation of 2.612014. Mean value of other independent variable, inflation is 7.838267 and standard deviation is 4.259429. Average of credit intake is 22.79724 and it has a standard deviation of 12.05179. Mean value for exports is 7.753733 with a standard deviation of 12.05179. Furthermore, 12.26360 is average of imports while 10.42340 is standard deviation. Trade deficit has a mean value of 4.230533 having a standard deviation of 2.924566.

5.3. Granger Causality Tests

Granger causality test is a way to measure whether one time series is useful for forecasting another dataset. The purpose of this test is to verify the direction of causality between the study variables. The null hypothesis of this test states that between the variables there is no Granger Causality. While the alternative states that causality occurs and it also shows that the causality is unidirectional or bidirectional. Table 5.3.1 below displays the results of the Granger Causality Check having 2 lags and 75 observations from 2005-21.

H_0 = There is no causality in the variables.

H_1 = There is causality in the variables.

Table 5.3.1: Granger Causality Tests

Null Hypothesis:	F-Statistic	Prob.	Type of Causality	Decision
Policy Rate does not Granger Cause Manufacturing	4.63907	0.0131	Uni-directional causality	Reject
Manufacturing does not Granger Cause Policy Rate	0.10222	0.9030	No causality	Accept
Inflation does not Granger Cause Manufacturing	1.67981	0.1945	No causality	Accept
Manufacturing does not Granger Cause Inflation	0.46276	0.6316	No causality	Accept
Credit Intake does not Granger Cause Manufacturing	0.17136	0.8429	No causality	Accept
Manufacturing does not Granger Cause Credit Intake	1.11439	0.3344	No causality	Accept
Exports does not Granger Cause Manufacturing	5.19587	0.0081	Uni-directional causality	Reject
Manufacturing does not Granger Cause Exports	0.71902	0.4911	No causality	Accept
Imports does not Granger Cause Manufacturing	7.22403	0.0015	Uni-directional causality	Reject
Manufacturing does not Granger Cause Imports	0.81837	0.4459	No causality	Accept
Trade Deficit does not Granger Cause Manufacturing	0.25717	0.7740	No causality	Accept
Manufacturing does not Granger Cause Trade Deficit	0.56358	0.5719	No causality	Accept
Inflation does not Granger Cause Policy Rate	2.02340	0.1399	No causality	Accept
Policy Rate does not Granger Cause Inflation	0.42261	0.6570	No causality	Accept
Credit Intake does not Granger Cause Policy Rate	3.60674	0.0323	Uni-directional causality	Reject
Policy Rate does not Granger Cause Credit Intake	11.7377	4.E-05	Bi-directional causality	Accept
Exports does not Granger Cause Policy Rate	0.59976	0.5517	No causality	Accept
Policy Rate does not Granger Cause Exports	0.29202	0.7477	No causality	Accept
Imports does not Granger Cause Policy Rate	0.01784	0.9823	No causality	Accept
Policy Rate does not Granger Cause Imports	4.01244	0.0226	Uni-directional causality	Reject
Trade Deficit does not Granger Cause Policy Rate	2.15999	0.1230	No causality	Accept
Policy Rate does not Granger Cause Trade Deficit	0.58752	0.5584	No causality	Accept

Credit Intake does not Granger Cause Inflation	0.90055	0.4110	No causality	Accept
Inflation does not Granger Cause Credit Intake	1.07582	0.3466	No causality	Accept
Exports does not Granger Cause Inflation	0.11855	0.8884	No causality	Accept
Inflation does not Granger Cause Exports	1.87369	0.1612	No causality	Accept
Imports does not Granger Cause Inflation	1.66659	0.1966	No causality	Accept
Inflation does not Granger Cause Imports	1.22013	0.3017	No causality	Accept
Trade Deficit does not Granger Cause Inflation	1.91352	0.1552	No causality	Accept
Inflation does not Granger Cause Trade Deficit	1.77961	0.1763	No causality	Accept
Exports does not Granger Cause Credit Intake	0.03919	0.9616	No causality	Accept
Credit Intake does not Granger Cause Exports	0.85367	0.4302	No causality	Accept
Imports does not Granger Cause Credit Intake	0.34091	0.7123	No causality	Accept
Credit Intake does not Granger Cause Imports	8.69713	0.0004	Uni-directional causality	Reject
Trade Deficit does not Granger Cause Credit Intake	4.13355	0.0201	Uni-directional causality	Reject
Credit Intake does not Granger Cause Trade Deficit	2.35864	0.1020	No causality	Accept
Imports does not Granger Cause Exports	1.67251	0.1954	No causality	Accept
Exports does not Granger Cause Imports	0.03975	0.9610	No causality	Accept
Trade Deficit does not Granger Cause Exports	0.94370	0.3940	No causality	Accept
Exports does not Granger Cause Trade Deficit	2.24295	0.1136	No causality	Accept
Trade Deficit does not Granger Cause Imports	3.78860	0.0275	Uni-directional causality	Reject
Imports does not Granger Cause Trade Deficit	0.18525	0.8313	No causality	Accept

Alpha (α) = 0.05

Decision rule: reject H0 if P-value < 0.05.

Key: DNR = Do not reject.

Does not Granger cause.

5.4. Results of Unit Root Test

To get reliable results, it is necessary to avoid spurious regression analysis for the stationarity of data because if the data is non-stationary, it is impossible to do forecasting. Table 5.4 shows E-views results for the Dickey-fuller augmented unit root test on all the variables. Results are provided with trend and without trend at level and at the first difference. Inclusion of trend option means that a linear time trend is included in this model.

Table 5.4: Results of Dickey-Fuller Augmented unit root test at the level and first difference

Variables	Level		First Difference		Decision
	t-Statistic	Prob.*	t-Statistic	Prob.*	
Manufacturing	-3.613089	0.0362**	-8.952069	0.0000***	I(0)
Policy Rate	-1.881923	0.6540	-11.29171	0.0000***	I(1)
Inflation	-2.886391	0.1727	-8.284909	0.0000***	I(1)
Credit Intake	-1.297980	0.8811	-8.863661	0.0000***	I(1)
Export	-4.725081	0.0014**	-10.86223	0.0000***	I(0)
Import	-3.733966	0.0260**	-11.50689	0.0000***	I(0)
Trade Deficit	-6.076620	0.0000***	-7.811913	0.0000***	I(0)

*"The ***, **, and * asterisks indicate the level of significance at 1%, 5%, and 10% respectively".*

Note: unit root tests were performed with restricted intercept and trend for all variables. i.e., large-scale manufacturing, policy rate, credit intake, trade deficit, imports and exports.

Table 5.4 presents the results of unit root tests. To check the stationarity of the variables, the Dickey-fuller augmented unit root test is employed. The Dickey fuller test results indicate that the policy rate, inflation and credit intake are non-stationary at level I(0). However they are stationary at first difference I(1), while the remaining variables large-scale manufacturing, export, import and trade deficit are stationary at level I(0). The null hypothesis of augmented dickey fuller test is that all data contain unit root. The null hypothesis was rejected because all variables were not stationary at level I(0). By taking first difference I(1) of variables containing

unit root, the problem of non-stationarity could be sorted out. Now, all variables become stationary for further process. In the present circumstance's variables are stationary at 2nd difference I (2) for this situation so, the more suitable technique for estimation is ARDL. According to (Pesaran et al., 2001) unit root test is applied to exclude the possibility of I(2) variables.

5.5. ARDL model

The results of panel ARDL model are shown in table 5.5. As some of our variables were stationary at level 1(0) and the rest were at first difference 1(1), therefore, ARDL was the most appropriate technique to check the relationship between large-scale manufacturing, policy rate, inflation, credit intake, imports, exports, and trade deficit.

Table 5.5: Results of ARDL Model

ARDL Estimation Results				
Dependent Variable:	**Large-Scale Manufacturing**			
Variables	**Coefficient**	**Standard Error**	**t-Statistic**	**P-Value**
D(Policy rate)	0.196294	0.184112	1.066163	0.0420
D(Credit intake)	0.984731	0.313600	3.140084	0.0030
D(Inflation)	0.270305	0.107444	2.515782	0.0155
D(Imports)	0.278651	0.044763	6.225063	0.0000
D(Exports)	0.153321	0.049368	3.105657	0.0033
D(Trade deficit)	-0.973564	0.515053	-1.890223	0.0652

*"The ***, **, and * asterisks indicate the level of significance at 1%, 5%, and 10% respectively".*

R-squared: 0.896733 Adjusted R-squared 0.860016

Table 5.5 reports the ARDL estimation results of the model. According to this model, the coefficient value of policy rate is positively and significantly associated with large scale manufacturing. These findings are in line with (Lombardo & Pagano, 1999; Asongu, 2012; Ajide, 2014). The partial slope of the coefficient for policy rate suggests that 1% increase in policy rate will lead to improvement in LSM by 19%. According to this model, the coefficient value of Credit intake is positively and highly significantly associated with large scale manufacturing. The partial slope of the coefficient for Credit intake suggests that 1% increase

in Credit intake will lead to improvement in LSM by 98%. The coefficient value of Inflation rate is positively and highly significantly associated with large scale manufacturing. The partial slope of the coefficient for Inflation rate suggests that 1% increase in Inflation rate will lead to improvement in LSM by 27%.

The coefficient value of import is positively and significantly associated with large scale manufacturing. The partial slope of the coefficient for import suggests that 1% increase in import will lead to improvement in LSM by 27%. The coefficient value of export is positively and significantly associated with large scale manufacturing. The partial slope of the coefficient for export suggests that 1% increase in export will lead to improvement in LSM by 15%. According to the coefficient value of import is positively and significantly associated with large scale manufacturing. The partial slope of the coefficient for import suggests that 1% increase in import will lead to improvement in LSM by 27%. The coefficient value of trade deficit is negatively but significantly associated with large scale manufacturing. The partial slope of the coefficient for trade deficit suggests that 1% decrease in trade deficit will lead to improvement in LSM by 97%.

5.6. Descriptive Analysis of Primary data

The first half of the descriptive analysis shows the Descriptive statistics of the variables used to explain the frequencies of the demographic variables of the response of the different people. Responses were taken from 345 people for the analysis.

5.6.1 Frequencies of Demographic Variables

The first part of this chapter includes the background of the respondent. It includes the gender, age, education, specifications and work experience of the respondents. Data has been presented in the tables.

5.6.2. Gender of the Respondent

Respondent were asked to select their gender by selecting the appropriate box. Purpose of this was to check the number of male and female familiarity with monetary literacy.

Table 5.6.2.1: gender of the respondents

	Frequency	**Percent**	**Valid percent**	**Cumulative percent**
Female	**165**	**47.8**	**47.8**	**47.8**
Male	**180**	**52.2**	**52.2**	**100.0**
Total	**345**	**100.0**	**100.0**	

Table shows that 165 respondents are female while 180 are male which means 47.8 females while 52.2 males gave respond.

5.6.3. Age of the Respondent

Table below shows of the age of respondent that what percentage belongs to the respective groups. Most of the respondent belongs to 18-25 years of age i.e. 49.3 percent of the sample size. While 2.9 % is from above 55. Whereas, 37.7% belongs to the age group of 26-35 and 1.4 % is from 36-35 age group.

Table 5.6.3.1: age group of the respondents

	Frequency	Percent	Valid percent	Comulative percent
18-25	170	49.3	49.3	49.3
26-35	130	37.7	37.7	87.0
36-45	5	1.4	1.4	88.4

46-55	30	8.7	8.7	97.1

5.6.4. Education of the Respondents

Education table differentiates the respondents according to education level. Distribution shows that most of the respondents are the part of graduation education. 89.9 % are graduates while 10.1% are from high school and 1.4% is illiterate.

Table 5.6.4.1: Education of the respondents

	Frequency	Percent	Valid percent	Cumulative percent
Illiterate	5	1.4	1.4	1.4
High school	30	8.7	8.7	10.1
Graduate	310	89.9	89.9	100.0
Total	345	100	100	

Different questions were asked from respondents. One question was about their work experience in the financial sector. Responses showed that 29 % of females while 71% of men have work experience in the financial sector. They were also asked about whether they watch news for economy related news. 87% response was positive while 45% showed negative response. 56.6% Respondents showed that they use television as a source of medium for daily news. 33.3% said they use social media while the rest of 2.9 % chose social gatherings as a source of medium for daily news.

65.5 percent of respondents were in the favor that media plays an important role in economic or monetary policy literacy. 23.2% of respondents showed that maybe media can play an important role in monetary policy literacy.

18.8% of respondents were in the favor that media can create positive perception about inflation, investment and interest rate by creating literacy programs. 18.8 said that media can do it by advertisements while 11.6% said it can be done by covering financial and economic news in the media. And 43.3%of respondents said it can be done by all these methods. 71% of respondents answered that they consult internet for market updates. 8.7 % uses print media while 18.8% said that they use electronic media for this news.

79.9% of respondents gave right answer to the question that they know who is the governor of SBP. 8.7% of respondents showed positive response that they are familiar with monetary policy. 30.4% response was unawareness of monetary policy. While 42 % respondents were somewhat aware of monetary policy. 71% respondents said that they don't know what is current policy rate of SBP.

CHAPTER 6

CONCLUSION AND RECOMMENDATION

The study's main objective was to examine the market uncertainty through monetary statements and also to find out the impact of communication on macroeconomic variables. This study finds out the people’s understanding with monetary policy and also explores the relation between large scale manufacturing, policy rate, imports, exports, credit intake and trade deficit. Bimester time series data has been used from period 2005- 2021 in this study. Additionally, some values from the data were missing which were generated by interpolation. In this study, large scale manufacturing is used as proxy of GDP.

Estimation technique used for analysis is unit root test, granger causality and auto regressive distributed lag (ARDL) model. This technique incorporates all the regression equation and is more efficient in estimation as compared to other techniques.

The research findings are compatible with previous literature. The analysis provided different results for the study's objectives. According to this study results, the coefficient value of policy rate is positively and significantly associated with large scale manufacturing. These findings are in line with (Lombardo & Pagano, 1999; Asongu, 2012; Ajide, 2014). The partial slope of the coefficient for policy rate suggests that 1% increase in policy rate will lead to improvement in LSM by 19%. According to this model, the coefficient value of Credit intake is positively and highly significantly associated with large scale manufacturing. The partial slope of the coefficient for Credit intake suggests that 1% increase in Credit intake will lead to improvement in LSM by 98%. The coefficient value of Inflation rate is positively and highly significantly associated with large scale manufacturing. The partial slope of the coefficient for Inflation rate suggests that 1% increase in Inflation rate will lead to improvement in LSM by 27%.

The coefficient value of import is positively and significantly associated with large scale manufacturing. The partial slope of the coefficient for import suggests that 1% increase in import will lead to improvement in LSM by 27%. The coefficient value of export is positively and significantly associated with large scale manufacturing. The partial slope of the coefficient for export suggests that 1% increase in export will lead to improvement in LSM by 15%. According to the coefficient value of import is positively and significantly associated with large scale manufacturing. The partial slope of the coefficient for import suggests that 1% increase in import will lead to improvement in LSM by 27%. The coefficient value of trade deficit is negatively but significantly associated with large scale manufacturing. The partial slope of the coefficient for trade deficit suggests that 1% decrease in trade deficit will lead to improvement in LSM by 97%.

Different questions were asked from respondents. One question was about their work experience in the financial sector. Responses showed that 29 % of females while 71 % of men have work experience in the financial sector. They were also asked about whether they watch economy related news or not. 87% response was positive while 45% showed negative response. 56.6% Respondents showed that they use television as a source of medium for daily news. 33.3 said they use social media while the rest of 2.9 % chose social gatherings as a source of medium for daily news.

65.5 percent of respondents were in the favor that media plays an important role in economic or monetary policy literacy. 23.2% of respondents showed that maybe media can play an important role in monetary policy literacy.

18.8% of respondents were in the favor that media can create positive perception about inflation, investment and interest rate by creating literacy programs. 18.8 said that media can do it by advertisements while 11.6 said it can be done by covering financial and economic news

in the media. And 43.3% of respondents said it can be done by all these methods. 71% of respondents answered that they consult internet for market updates. 8.7 % uses print media while 18.8% said that they use electronic media for these news.

79.9% of respondents gave right answer to the question that they know who is the governor of Sbp. 8.7% of respondents showed positive response that they are familiar with monetary policy. 30.4% response was thy are not aware or monetary policy. While 42 % respondents were somewhat aware of monetary policy. 71% respondents said that they don't know what current policy rate of Sbp is.

6.2. Future suggestion and recommendation

The following are the recommendations for the monetary policy makers for SBP communication.

Monetary policy statements should be in easy wording so that people who do not belong to financial background can easily understand the message. The transmission of monetary policies to financial markets or general public is likely to be weak if the statements are on average too long or too difficult to interpret. As a result, SBP's implementation of monetary policy objectives may be harmed. Furthermore, instead of transmitting monetary objectives through document, bank should make a video in which objectives are recorded in native language so that people belonging to different backgrounds can easily understand. As, media plays an important role in transferring information. It should focus on all prospects instead of covering only two or three topics. Announcement from SBP directly influences markets and analysts while public get informed through media. Thus, media's awareness regarding monetary policy decisions is important for central bank's impact on public.

6.3 Limitations

During this study, we encountered certain limitations. One occurred from data problem due to unpredictable monetary policy statements pattern. Current Monetary policy statements are no

more than two pages but before 2008, they used to be more than twenty pages. So, it was difficult to access them and they were also time intensive. Furthermore, in some years MPS were not bi-annually, some statements were announced semiannually, while some were announced quarterly. It created problem in data collection.

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Tables and Appendixes

Questionnaire

1- Gender
   - Male
   - Female
   - Other
2- Religion
   - Islam
   - Other
3- Province
   - Punjab
   - Sindh
   - KPK
   - Baluchistan
4- District name ----------
5- Age group
   - 18-25
   - 26-35
   - 46-55
   - Above 56
6- Education status
   - Illiterate
   - Primary
   - High school
   - Graduate
7- Monthly income
   - Less than 20,000
   - 20,000-50,000
   - 50,000-80,000
   - 80,000 +
8- Occupation
   - Public servant
   - Private servant
   - Businessman
   - Unemployed
9- Do you have a bank account?
   - Yes
   - No
10- What type of bank account do you have?
   - Current Accounts
   - Term Deposit Accounts

- Savings Accounts
- Foreign Currency Bank Accounts
- Others

11- Do you work in any financial sector?
- Yes
- No

12- Do you watch news?
- Yes
- No

13- Which source of medium you use for daily news?
- Television
- Social Media
- Social Gathering
- Others

14- How much time do you spend on watching/reading daily news?
- One hours
- Two hours
- More than two hours

15- Do you think media plays vital role regarding monetary policy literacy?
- Yes
- No
- Maybe

16- Do you think media can develop economical literacy in our society?
- Yes
- No
- Maybe

17- How media can create positive perception about inflation, investment and interest rate?
- By creating literacy programs
- By advertisement
- By covering every financial and economic news in media
- By awareness seminars
- All of above

18- Which source of medium do you use for market updates?
- Internet
- Electronic media
- Print Media

19- Do you feel that SBP performance regarding interest rate and inflation is affected by various positive and negative news on media?
- Yes
- No
- Maybe

20- If yes, what type of news affects SBP performance?
- Political pressure
- Law and order situation

- Other

21- Who is governor of SBP?

- Shamshad Akhtar
- Ishrat Hussain
- Reza Baqir
- Other

22- How familiar are you with monetary policy?

- Extremely
- Moderately
- Somewhat
- Not at all

23- Do you know current policy deposit rate of Pakistan?

- Yes
- No

24- If yes, what is current pdr? _____

Tables

Religion

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	325	94.2	94.2	94.2
	2	20	5.8	5.8	100.0
	Total	345	100.0	100.0	

Province Or Area Name

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	190	55.1	55.1	55.1
	2	45	13.0	13.0	68.1
	3	55	15.9	15.9	84.1
	4	55	15.9	15.9	100.0
	Total	345	100.0	100.0	

District Name

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		175	50.7	50.7	50.7
	chakwal	15	4.3	4.3	55.1
	Chakwal	20	5.8	5.8	60.9
	Chiniot	5	1.4	1.4	62.3
	Chitral	15	4.3	4.3	66.7
	Gujranwa	5	1.4	1.4	68.1
	Hafizaba	10	2.9	2.9	71.0

	islamaba	5	1.4	1.4	72.5
	Islamaba	15	4.3	4.3	76.8
	Jhang	15	4.3	4.3	81.2
	Karachi	5	1.4	1.4	82.6
	Larkana	5	1.4	1.4	84.1
	Mardan	5	1.4	1.4	85.5
	Mianwali	20	5.8	5.8	91.3
	Quetta	5	1.4	1.4	92.8
	Rawalpin	20	5.8	5.8	98.6
	Zhob	5	1.4	1.4	100.0
	Total	345	100.0	100.0	

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	165	47.8	47.8	47.8
	2	180	52.2	52.2	100.0
	Total	345	100.0	100.0	

Age Group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	170	49.3	49.3	49.3
	2	130	37.7	37.7	87.0
	3	5	1.4	1.4	88.4
	4	30	8.7	8.7	97.1
	5	10	2.9	2.9	100.0
	Total	345	100.0	100.0	

Education Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	5	1.4	1.4	1.4
	3	30	8.7	8.7	10.1
	4	310	89.9	89.9	100.0
	Total	345	100.0	100.0	

Monthly Income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		50	14.5	14.5	14.5
	Below 20000	65	18.8	18.8	33.3
	21000-50000	115	33.3	33.3	66.7
	51,000-80,000	60	17.4	17.4	84.1

	Above 81,000	55	15.9	15.9	100.0
	Total	345	100.0	100.0	

Occupation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Public Servant	40	11.6	11.6	11.6
	Private Servant	120	34.8	34.8	46.4
	Businessman	40	11.6	11.6	58.0
	Unemployed	145	42.0	42.0	100.0
	Total	345	100.0	100.0	

What type of bank account do you have?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		30	8.7	8.7	8.7
	1	10	2.9	2.9	11.6
	2	75	21.7	21.7	33.3
	3	5	1.4	1.4	34.8
	4	180	52.2	52.2	87.0
	5	45	13.0	13.0	100.0
	Total	345	100.0	100.0	

Do you work in any financial sector?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	100	29.0	29.0	29.0
	2	245	71.0	71.0	100.0
	Total	345	100.0	100.0	

Do you watch news?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	300	87.0	87.0	87.0
	2	45	13.0	13.0	100.0
	Total	345	100.0	100.0	

Which source of medium you use for daily news?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		15	4.3	4.3	4.3

	Television	195	56.5	56.5	60.9
	Social Media	115	33.3	33.3	94.2
	Social Gathering	10	2.9	2.9	97.1
	Others	10	2.9	2.9	100.0
	Total	345	100.0	100.0	

How much time do you spend on watching/reading daily news?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		25	7.2	7.2	7.2
	One Hour	250	72.5	72.5	79.7
	Two Hours	55	15.9	15.9	95.7
	More Than Two Hours	15	4.3	4.3	100.0
	Total	345	100.0	100.0	

Do you think media plays vital role regarding monetary policy literacy?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		10	2.9	2.9	2.9
	Yes	225	65.2	65.2	68.1
	No	30	8.7	8.7	76.8
	Maybe	80	23.2	23.2	100.0
	Total	345	100.0	100.0	

Do you think media can develop economical literacy in our society?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		5	1.4	1.4	1.4
	Yes	250	72.5	72.5	73.9
	No	30	8.7	8.7	82.6
	Maybe	60	17.4	17.4	100.0
	Total	345	100.0	100.0	

How media can create positive perception about inflation, investment and interest rate?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		5	1.4	1.4	1.4
	By creating literacy programs	65	18.8	18.8	20.3
	By advertisement	65	18.8	18.8	39.1
	By covering every financial and economic news in media	40	11.6	11.6	50.7

	By awareness seminars	20	5.8	5.8	56.5
	All of above	150	43.5	43.5	100.0
	Total	345	100.0	100.0	

Which source of medium do you use for market updates?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		5	1.4	1.4	1.4
	Internet	245	71.0	71.0	72.5
	Electronic media	65	18.8	18.8	91.3
	Print Media	30	8.7	8.7	100.0
	Total	345	100.0	100.0	

Do you feel that SBP performance regarding interest rate and inflation is affected by various positive and negative news on media?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		5	1.4	1.4	1.4
	Yes	180	52.2	52.2	53.6
	No	30	8.7	8.7	62.3
	Maybe	130	37.7	37.7	100.0
	Total	345	100.0	100.0	

If yes, what type of news affect SBP performance?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		45	13.0	13.0	13.0
	Political pressure	130	37.7	37.7	50.7
	Law and order situation	50	14.5	14.5	65.2
	Others	120	34.8	34.8	100.0
	Total	345	100.0	100.0	

Who is governor of SBP?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		15	4.3	4.3	4.3
	Shamshad Akhtar	35	10.1	10.1	14.5
	Ishrat Hussain	30	8.7	8.7	23.2
	Reza Baqir	195	56.5	56.5	79.7
	Others	70	20.3	20.3	100.0
	Total	345	100.0	100.0	

How familiar are you with monetary policy?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Extremely	30	8.7	8.7	8.7
	Moderately	65	18.8	18.8	27.5
	Somewhat	145	42.0	42.0	69.6
	Not at all	105	30.4	30.4	100.0
	Total	345	100.0	100.0	

Do you know current policy deposit rate of Pakistan?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		10	2.9	2.9	2.9
	Yes	90	26.1	26.1	29.0
	No	245	71.0	71.0	100.0
	Total	345	100.0	100.0	

If yes, what is current PKR?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		290	84.1	84.1	84.1
	7	30	8.7	8.7	92.8
	8	10	2.9	2.9	95.7
	Don't Kn	5	1.4	1.4	97.1
	No	5	1.4	1.4	98.6
	Yes	5	1.4	1.4	100.0
	Total	345	100.0	100.0	

Count

Province Or Area Name			Do you have a bank account?	Total
			1	
1	Education Status	3	15	15
		4	175	175
	Total		190	190
2	Education Status	3	5	5
		4	40	40
	Total		45	45
3	Education Status	3	10	10
		4	45	45
	Total		55	55
4	Education Status	1	5	5
		4	50	50
	Total		55	55
Total	Education Status	1	5	5
		3	30	30
		4	310	310
	Total		345	345